

**NH COMMISSION TO STUDY THE ENVIRONMENTAL AND HEALTH EFFECTS  
OF EVOLVING 5G TECHNOLOGY**

Meeting held:

8/31/20

9:00-11:00 am EST

Via Zoom (<https://unh.zoom.us/j/95489344931>)

Via telephone-US (1 312 626 6799 (US Toll) ID: 954 8934 4931)

In attendance: (12)

Rep. Patrick Abrami-speaker of the house appointee

Rep. Ken Wells- speaker of the house appointee

Kent Chamberlin-UNH-appointed by the chancellor

Denise Ricciardi-public-appointed by the governor

Michele Roberge-DHHS- Commissioner of DHHS appointee

Dr. Paul Heroux- Professor of Toxicology, McGill University- speaker of the house appointee

Rep. Gary Woods-speaker of the house appointee

Senator Jim Gray-president of the senate appointee

Senator Tom Sherman-president of the senate appointee

Brandon Garod-AG designee, Asst. AG Consumer Protection

Bethanne Cooley-CTIA , trade association for wireless industry and manufacturers

Carol Miller-NH Business & Economic Affairs Dept

Not present: (1)

David Juvet-Business and Industry Association

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Meeting called to order by Rep Abrami at 9:05 am

Abrami: Due to the Covid 19 virus and the Executive order signed by the Governor this public meeting is allowed to be conducted via Zoom. It is open to the public for viewing and was duly posted as a zoom meeting. With that said, if you are not a member of the Commission, can you please turn your cameras off and mute yourselves? That would be much appreciated. In addition the meeting is being recorded as an aid to doing the minutes. All chat room discussions will be included in the minutes.

**I. Approval of minutes from 7-24-20:**

I have not received any comments or changes to the minutes. Are there any changes? Without objection, we approve the minutes from that meeting.

## **II: Proposed report format/ Procedural Discussion:**

Abrami: We also sent out a copy of the agenda and the proposed final report format and recommendations the work group has been working on. That's the primary reason for the meeting is to talk about those and if there are any other recommendations. This is what I am thinking about the report: Preamble, Definition of Terms, Physics, Study process (who we heard from, etc.), then a section of the questions posed by the Commission in the legislation and the answers, our recommendations.

What we consider firm recommendations for lack of a better word and also listing some other things that we decided not to make recommendations. There will also be appendices and supporting documentation for the recommendations and of course the minutes will be attached to the report. This is what I am thinking but I am open to any changes. Are there any questions on that?

Cooley: Rep Abrami, just one question on that. In the outline, where would a minority report or dissenting opinion fit it?

Abrami: I will double check this but it's a separate report that gets attached to this report. I know there will likely be a minority report which is fine. I will get clarification on that. It was easier when we were at the state house and I could just walk over and ask but I will get clarification on that. OK?

Cooley: Yes, thank you.

Abrami: There is a work group that consists of seven members: Carol, Denise, Gary, Ken, Kent, Paul and myself. There are seven of the twelve members that have been active. The working group met three times. We started with a baseline of ten recommendations and we have done several iterations on these. Obviously, these are open to discussion today whether you think they should or should not be in the report, etc. Since I sent these to you I have gotten two updated versions that I sent to you this morning. Sorry it was late. One is from Paul with some minor changes. One is from Jim with some major changes. Hopefully, you have seen them.

Sherman: Pat, I also sent some minor edits to Paul's version this morning.

Abrami: ok. I didn't see those. So can you chime in when we get there? What we will do is take them one at a time and have a discussion around each one. I had a communication with Beth about, do we really want to take a vote on these today given that you have just received them this weekend. What we can do is take a straw poll to see where we are on each one of them and not be an official vote. When we do a final vote on these, if the majority votes yes, it will be in the report as a firm recommendation. If not, then it's not. After that, we will have a vote on the report with everything in it. There are twelve members that are active, so if it ends up 6-6, I will have to figure out what that means.

What I would like to hear from you today possibly three things. 1. I like it the way it's written. 2. I would like to make some changes then I could support it. 3. No matter what, I don't think this recommendation is needed. Certain members of the working group took charge of certain recommendations so I will ask them to describe the recommendation and what the motivation was behind it. If there are any other recommendations please let us know in this meeting and we can deal with those.

Sherman: Before we go to Recommendation 1, can I just make a comment on the first paragraph?

Abrami: Sure

Sherman: This is a great sentence but it's very long. On the last one it says ", thus the commission ..." I think it would be clearer if you had a period and the words, "given these considerations, the commission yields". My feeling is that it's fine but I would have the last sentence be independent. That's in my edits for what it's worth.

Abrami: I get it. That's a good one.

Wells: I submitted an edited version of this one and changed it into a bullet list.

Abrami: ok. Boy, I am behind in my email. I missed that one too.

Miller: Which document should we be looking at? The original and everyone can chime in with their changes? I have multiple versions open and I don't know which one I am looking at any more. I think the one that you sent was Revision 3. Correct?

Abrami: Yes. If you see red in there, that means there were changes.

Sherman: which one did you send?

Miller: It was Revision\_3 5G Recommendations.docx

Gray: since we are commenting on the first paragraph, I took out a couple of different things in my revision. I think that whoever puts this thing together at the end should consider removing and only presenting facts and not things that aren't facts.

Abrami: What you are saying is that the things that you crossed out aren't factual.

Gray: Right. You talk about the whole insurance industry, well that's not true, ok? The insurance industry if you leave it like that is more accurate. In the next sentence down you say "because of" instead of "due to potential harm". Thank you.

Abrami: I agree with those. These are good ones.

Gray: The word "determined" is used many places. In my edits part of my suggestion is that we take that out and replace it with the word "believe". The definition of determined is that it's found to be a fact or conclusive. In the first paragraph of the report we say that none of this is found to be a fact so again... take that word out and replace it with believe or a word of your choice. That would be a good revision.

Sherman: If you are anticipating a Minority Report, then wherever you have "the Commission has concluded" should be changed to the Majority or this Majority of the Commission has concluded... because you are going to have a Minority Report that has not concluded that necessarily. I think you will be a little more accurate using that phrase in the Majority report. That's only if there is going to be a Minority Report to recognize that the entire commission does not agree with this report.

Abrami: That's a good point, Tom. I anticipate there is going to be a Minority Report.

Gray: I will write it.

Abrami: Ok. So we are going to have a Minority report. Anyone who wants input into it can send me their comments.

Roberge: I haven't had a chance to talk with my leadership from DHHS on any of these recommendations so I may have additional comments from a resource perspective once I have had a chance to look these over with leadership. Also, I know we talked about this at the last meeting about not formally taking a position on the recommendations just due to the role of the department. I think we would just want to have a statement in the report reflective of that.

Abrami: right. It will say effectively that the recommendations do not necessarily reflect the position of any agency, Attorney General's office or Dept of Health and Human Services.

### **III: Work group recommendations and discussion:**

***RECOMMENDATION 1- Propose a joint resolution of the NH Senate and House to the US Congress and Executive Branch to require a review of the current radiofrequency (RF) standards of the electromagnetic radiation in the 300MHz to 300GHz microwave spectrum, used to measure exposure and health study to mitigate the health risks associated with the use of cellular communications and data transmittal, promulgated by the Federal Communications Commission (FCC).***

Cooley: With the whole caveat that I received these Saturday morning and have not spoken with my members or with legal dept. so that will be my disclaimer throughout all of this discussion. My one question about this recommendation.... The first sentence of the last paragraph that says, " this commission believes that EMR is on the path to be confirmed as a class I carcinogen, where does that information come from? Is there a footnote? How is that assumption being presumed?

Miller: Recommendation 1 is a merger of something that I had written and Paul had written. That particular phrase came from Paul. Can you speak to that?

Heroux: Essentially that would refer to an article by an epidemiologist Anthony Miller who is very active with IARC. In other words, IARC has agreed to review the situation and in the last report what was missing was animal evidence and its likely there will be an upgrade to the classification because you have two major studies NTP and Ramazzini that now provide animal evidence.

Abrami: We need to refer to the papers either as a footnote or in the appendix.

Cooley: I think a footnote, Mr. Chair might be helpful because this is someone who has not presented before the Commission. I don't know who they are and it's the opinion of one person. I think backing up that claim or allegation would be helpful.

Abrami: The gist of recommendation 1 and I don't know Beth, why your organization would not think it's a good idea saying that we do have more to study. That's basically the thrust of this. There are a lot of organizations asking for this. Carol, why don't you spend a few minutes on this.

Miller: This is a joint resolution of the New Hampshire Senate and House to the US Congress and Executive Branch just requiring a review of the current RF standards and asking for a health study. The un-highlighted text is just back up and could probably be moved to the appendix. I don't know if anyone has any questions about that particular recommendation. I think it's pretty straight forward.

Sherman: I thought the recommendation was fine. It was straightforward but I thought there was a clearer way to describe what we are trying to get done. The edit that I suggested would read: "Propose a joint resolution of the NH Senate and House to US Congress and Executive Branch to require the FCC to conduct or commission a review of the current RF standard of EMR in the 300Mz-300GHz microwave spectrum as well as a health study to assess and recommend mitigation for the health risks associated with the use of cellular communications and data transmittal". I just think it's the active which makes it clearer than passive.

Miller: So you are suggestion after the word "require" to put the "FCC" right there.

Sherman: yes and after the word, "spectrum" I would use the words "as well as a health study to assess and recommend mitigation for the health risks associated with the use of cellular communications and data transmittal".

Miller: I am ok with that. Anybody else have an opinion about that?

Abrami: That's fine with me. Does anybody have a problem with that?

Gray: Again, I have made many changes in my edits and I don't object to many of the words that Dr. Sherman has put forward but I still think the rest of those paragraphs need to be looked at. When I read this report for the first time, it was very clear to me that someone who was a very big proponent of eliminating 5G or wifi, entirely, wrote this thing. That's not our job as a commission. I encourage you to take a look at my edits. I tried not to gut your proposals but to make it more neutral while still putting forth your proposals. Thank you.

Abrami: The work group will be meeting again on Friday. We have got our work cut out to try to pull all of these together. I am sure some of your words are going to make it into the report, Jim. The bigger question right now is who is opposed to having a joint resolution where we say that more study is needed on this topic? Who is opposed to that? We can tinker with the words.

Gray: I am not opposed to having a study but I want you guys to know that the reality of having a joint House/Senate Resolution is practically nil. The Senate has these resolutions and has determined that it's

better for the citizens to go out individually contact their Congressmen than to do one of these resolutions.

Abrami: It is our understanding on the House side that the Senate doesn't like joint resolutions. We were trying to give it a little more umph. No matter what we do, it will be a sell to whether it's just the House, where we will have to get 201 members to agree to it. We thought it was important that as a commission that at very least, we make a statement that further study is needed, bottom line. Having the full House and Senate would give it more umph than just the commission.

Ricciardi: I want to make two statements if I could with all due respect to everyone. I am going to speak for the seven of us on the working group. I don't believe any of the six of you are against technology by any means. We are for it and we presented solutions that are safer, quicker, better latency. I don't appreciate that we are called out as saying we are against it. That's simply not true. I've got my cellphone right here ok? I want to clear that up right now. We are not against it. We are against the way it is now and we have shown a better solution as you get down into the recommendations.

The second thing is, we are tasked with a job based on the findings that we found. We don't sit here and not put them forward because the Senate or the House won't go for it or we didn't do our job. Our job is to present the truth. You don't, not present the truth because you are afraid of the outcome. The truth is the truth. You place it there and see where it goes. The seven of us with the testimony, the evidence and the science came to these conclusions. Anyone else who disagrees is allowed to and I respect their opinion and they can follow up in a report. But I do think we should get through it so we all have a good sense of where we are at. I am going to reiterate this. It is unconscionable to not tell the findings because you are afraid it won't sit well with someone or won't pass. That's my two cents.

Abrami: Thank you, Denise.

Sherman: Pat, I have a few edits on the paragraphs following recommendation one if this is the right time to mention them and they are minor. The words "living things" at the end of the second paragraph. I would replace that with "organisms" which is a slightly more scientific term for living things. The Obama-Biden plan to combat cancer, I am concerned about including that if it was never adopted by any elected body. If it was 2008, was that a campaign plan they had in 2008 because certainly the FCC would not be held to any campaign plan. My recommendation would be if it was adopted, then include it but if it was a campaign platform, I would delete it and just have the first one which was the National Cancer Act.

Miller: I am ok with that. I didn't write that particular piece.

Abrami: I think Tom has a good point, Paul. Was that ever enacted?

Heroux: I am trying to find out what type of formal approval this had but I think I should do it later.

Abrami: yes. Please do it later.

Gray: Sometimes these things are done by Executive Orders. But the paragraph ahead of that, where you talk about the FCC, all needs to be restructured also. Rewording that so it flows much better is something that you should consider.

Sherman: I agree with Jim on that wording because rather than have the word “favorable” in that paragraph with the Ninth Circuit Court, I would use what Jim said which was what the ruling was and what it will result in. I haven’t seen Jim’s version of this but I would favor being as clear as possible. The word “favorable” leaves a question as to who is it favorable to? Is it favorable to the FCC or the plaintiff?

Abrami: Carol, I am looking at you.

Miller: I am ok with removing that and I am not that invested in the surrounding documentation and it should probably be moved to the appendix. With regard to this, there is a lot of information in there and I think it just muddies the water.

Abrami: Ok, you heard all the comments Carol to modify.

Miller: If people send their recommendations directly to me, I am happy to do that or its going to get lost in the shuffle. I have Senator Gray and Senator Sherman, who else had comments?

Cooley: I just had a footnote on the article by Anthony Miller.

***RECOMMENDATION 2- Establish a State position that protects the State and all its Municipalities from any liability from harm caused by small cell antennae placed on the public rights-of-way. Specifically liability of the State of New Hampshire and its municipalities connected to harm caused by claims of personal damage or harm from the deployment of 5G small cell towers or the attachment of 5G antennae on telephone poles, electric poles, lamp poles, or other structures on the public right-of-way is by state statute transferred to the Federal Government. The Federal Government shall be required to defend and indemnify the municipality from any liabilities arising from permits and the installation, operation, and maintenance of small cell installations.***

Abrami: We had some discussion about this. This had to do with protecting our municipalities from harm. Do we really want this recommendation or not because the feeling is that it will put citizens in a bad position. I actually originally wrote this and Paul took it from there. Our communities are being forced to deploy small cells at telephone height and I thought about holding them harmless. This was an attempt to protect our municipalities, but what about people?

Heroux: Well, this is a rather legal question. I think we all recognize the motive of Rep. Abrami's original statement. But, if the federal government cannot be sued and if this recommendation goes nowhere, what is the means by which we can support municipalities and individuals who might feel helpless in relation to this problem in the sense of congealing their actions together and make sense of it and rationalize it.

Woods: It seems as a discussion, we went over this very point and the complexities of having a liability element in there as a recommendation. We wanted to include it but perhaps put it at the end as an observation. And couch it in terms that we understand that this very well may be an issue that will come to the fore that we did not have a recommendation but wanted to recognize that this is an issue that will perhaps need to be addressed in the future.

Abrami: right. I put in my notes...discussing whether to demote to something less than a recommendation.

Sherman: Brandon is with the AG's office. Could we get an opinion whether this is even possible? What's happening is states and municipalities are being asked to approve these but based on FCC rulings, they don't really have a choice. As a result, if the people of the town are harmed, and go after the municipalities because they can't go after the federal government (FCC) then they are stuck. I am concerned that municipalities will bear the brunt of liability without being able to say no to the request from the cellular company. Do we have any wiggle room on this? Or is it something that is not worth mentioning because there is nothing we can do about it? Can Brandon weigh in?

Garod: I'll do my best with the caveat that gets into the question of what is civil negligence and what establishes the liability for civil negligence. That is pretty far outside the realm of what I typically do in the consumer protection world. But, I had two initial thoughts when I looked at this. Because municipalities are being forced to this and don't have a choice. To bring a suit for negligence there has to be some sort of negligent action like setting aside the standard of care. If they are being forced, I don't know how a community could be held liable for that. If they did have an option and did not do their due diligence and allowed this to happen, that's a different story. It's very clear that other than aesthetic regulation, the placement, design, size of something in a public space, municipalities have no authority to say no to 5G technology being moved into their town. I don't think there is a huge risk of liability for municipalities.

When I went back to the legislation, and looked at what the commission is supposed to do, I think this is a bit of an outlier. I think it may be worth mentioning that there are concerns about who would be liable. I don't see anything in the commission's tasks as to what steps we need to take legally protect municipalities or the state from possible liability. It's more getting the information out there, developing strategies to limit exposure, public policy statements rather than developing a plan to protect municipalities from liabilities.

I think that likely if there are lawsuits in the future, that they will be directed at cellphone companies who are pushing these things out aggressively without doing their research and they have acknowledged the risk of harm as they recommend not putting it near your head but if they are then

going to implement towers everywhere and not give anybody a choice, that's really their choice. I am not sure that their choice and actions can be imparted onto municipalities that don't have an option and trust the FCC that they are doing what they are supposed to be doing about safety. Those are my takes.

Ricciardi: The seven of you know that I have been against recommendation 2. I feel it's a dangerous recommendation and we should omit it. State government needs to make these antenna safe not indemnify or protect government from liability or responsibility when they allow them to be deployed unsafely. We need state government to say no to these transmitters and challenge legal cases around Section 704 of the 1996 Telecommunications Act that prevent them from even considering health and safety. I don't think we should have Recommendation 2 in there at all.

Abrami: My original thought on this one is...the new twist is that these antennas are going to be in the public Right Of Way. In the back of my head I'm thinking there is something different about these being in the public Rights of Way. We have two, the municipal and the state ROW. We have town roads and state roads. So, that's the game changer for me. That's what's different about this. We have no control of those antennae and what's coming out of them. I am okay with eliminating #2 or demoting it.

Sherman: The real problem here, as Brandon said is that the municipality and the state can only object on the basis of aesthetics. We should be asking our federal delegation to bring legislation that would allow or expand the ability of municipalities and states to challenge the placement of 5G/small cell technology based on concerns about health risk. That is getting to the meat of the problem here. The reason that #2 exists is because municipalities and states have no ability to challenge FCC ruling on the basis of health risk. To me, that's the crux of the problem. What needs to happen is we need to allow local control with regard to health concerns for this technology. Local and state governments should have some regulatory impact on whether or not this is rolled out.

I can't believe that the FCC can do this without any consideration of health impact. I would change #2 or I would change the concern to: the Commission will write a letter to our federal delegation urging them to bring federal legislation that would expand the ability of states and municipalities to object to implementation or placement of 5G/small cell technology based on their concern for health risk. That's the way I would take this, rather than going down the liability corridor which gets us into the issues that Brandon was talking about.

Abrami: Right, the courts are not reviewing whether it's good or bad. They are just following 1996 statute.

Sherman: Frankly, if the industry wants to bring Xenon ray guns out that transmit data quickly, they can do it if the FCC says they can do it. The FCC has the power to say, you have no right to object to whatever technology that the telecommunications industry brings forward based on health risk. That's it. That's the problem.

Heroux: what the FCC says is that certain levels of electromagnetic radiation and power density are not harmful. It has a stranglehold on that because this was a main preoccupation of the engineering community. It also says that you have to provide telecommunications service. But these two

requirements leave a lot of ground for other arguments. I think aesthetics is a very weak word to describe the leeway that you actually have. Without confronting the FCC, you can probably do lots of things.

Chamberlin: My point is that we might want to wrap #2 into #1 since they are pushing for basically the same thing having our federal delegation become involved in changing the policies for objecting to cell tower placement.

Abrami: that's a possibility. Also, I should have mentioned this earlier. We had a discussion in the working group about even using the term 5G but broadening that to a certain bandwidth of RF because 5G may be passe in a year or two with 6G. 5G is just a marketing concept. It's being rolled out differently by all of the cell companies. Some are using small cell towers and others aren't. I don't want to burden this here but we are looking for words to use in the report that would be broader than 5G.

Sherman: I would fully support that.

Wells: I agree and I can write some language about that.

Abrami: #2 won't stand the way it is and we will take a crack at it by either incorporating it in #1 or coming up with some additional language here. Basically, the change that would have the most impact is for the U.S. Congress to act. We all know that. That's a tough one. There are bills filed every once in a while but they tend to go nowhere at the federal level but as New Hampshire we will throw our two cents in. Or at least the Commission will.

***RECOMMENDATION 3- Require the New Hampshire Department of Health and Human Services or other New Hampshire agency to include links on its website that contain information and warnings about RF-Radiation from all sources, but specifically from 5G small cells deployed on public rights-of-way as well as showing the proper use of cell phones to minimize exposure to RF-Radiation. In addition, public service announcements on radio, television print media, and internet should periodically appear, warning of the health risks associated with radiation exposure. Of significant importance are warnings concerning the newborn and young as well as pregnant women.***

Chamberlin: the part that we were most recently looking at in our subcommittee is an establishment of a registry that would be on a website. The reason for that registry would be for people to log their concerns. How I became aware of this being at the University in electromagnetics, a number of calls from concerned citizens get routed to me. I tell them what I know about exposure to electromagnetic fields and they are sometimes concerned that they don't have an avenue for reporting their concerns. I tell them that there is not much they can do about exposure at this point because of the 1996 Telecommunications Act and so they are stuck. Where do they go? Do they go to the FCC? That doesn't seem to be a very productive avenue. I feel by having a registry, we can get a sense of how many people

are concerned in the state of New Hampshire and to build essentially ammunition if there are a lot of concerned people so we can go to the federal delegation and have them do something.

That's the second part that I really addressed and that is have a registry where citizens can report concerns so we can get a sense of how many people do have concerns. If it's only one or two then maybe the point is moot but if we are getting hundreds that's something that we should know. Paul, did you want to address the other aspect of this?

Heroux: You are right. We wanted to give an access point to monitor this situation and the access point could be for either individuals or organizations or a separate access point for both of these.

Gray: This is Jim. This recommendation first of all should not be for the Dept of Health and Human Services. It should be for the state because we don't care what department it is as there may be a better place to put it. It's more realistic if you have the state collect data. What we are talking about here is a man year of effort and supervision and if the volume is high, maybe more than that. That would be a budget issue and again, do we really want that and will the legislature approve it?

Abrami: we know most of these will have to go to the legislature for approval but first someone has to file the bill. Those discussions will happen there. We decided that we want to make the recommendations and let that process work through.

Chamberlin: I have done websites like this and to provide information and add links as we have done with the website associated with the Commission. In terms of a registry, it could be something as simple as a survey. I have created those in an afternoon. We could create a survey that is appended to the website. I think we are talking about a man week as opposed to a man year worth of effort.

Heroux: I echo that comment because with automation today, it's fairly easy to create a link and a person from within the state can access this link and file a pdf document automatically. If you have many requests then you might face the labor of assessing these requests but as Kent pointed out, you wait until you have many and then you know it's worth it. Thank you.

Roberge: As I said earlier, I have not had the opportunity to talk with leadership about this so I may have some additional comments. One thing that I thought of and it's been talked about a little bit here is funding for this. If the department is required to do a registry, there are obviously database requirements and an evaluation component. One thing that concerns me is that if we are collecting this information, at this point, we don't have any authority to do anything with it. That's somewhat concerning to me because if we are collecting all of this information, what is the dept doing with it? I know DES has been mentioned, I am not sure if they are appropriate either.

I know DHHS has a radiological program. It's a small program that is focused on ionizing radiation. We license and inspect sources of ionizing radiation including x-ray machines in dental offices or hospitals or industrial radiography in industry or a radioactive materials program. Again, that is focused on ionizing radiation. The department also participates with Homeland Security Emergency Management and an emergency response program specifically for Seabrook Station. Again, it's ionizing radiation. I'm not sure

that DES is the correct agency. That being said, any additional requirements to do inspections, monitoring or in this case PSAs and things like that, there is a funding mechanism that would be an issue. If you had a registry, what are you doing with that data? Is it confidential? Will there be private health information if people are talking about radiation sickness? How involved are we going to be with these activities?

Also, I am not sure where the PUC falls in any of this. They do regulation of power lines so the radiological health program does not do power lines. That falls under the Public Utilities Commission. I am not sure where Telecommunications falls and if that would fall under PUC or not. I just wanted to offer up those thoughts and certainly I am going to take this back to my program and I may have additional thoughts to share at a future meeting or through email.

Abrami: It is my understanding that telecom is not really regulated like the utilities because it's not considered a utility.

Sherman: I have a few thoughts. We have a commission to study environmentally triggered disease and we have been working on this kind of database on that commission. We have been disrupted by Covid and it's a senate commission so we have not been allowed to restart but what we have learned is DES has a site where private property owners can put their well test results in. I don't believe that required legislation or if they did that through rules. Individual well owners could enter their data into the site and make it possible for DES to develop a database for private well owners.

There is also on the public health side, and Michelle knows there is an entire infrastructure of public service and the ability to generate public service announcements. One concern I would have is with well testing you have a certified report from a well tester. But with this, if you have people self-report with what is on their digital read out on their EMF monitor that has not been verified. I would be concerned about any agency being compelled to report non verifiable data. Just a few thoughts but this might be something we could take up with the environmentally triggered disease commission. There might be a softer language to recommendation 3 and I agree with Jim that we should not say which departments would do this because it could be one of several departments.

Abrami: My concern is what data? What are people reporting? It's one thing if it's data but just feelings? I don't know we have to be careful.... feelings based on what?

Chamberlin: We will talk more about data collection in another recommendation but for this one, this is just a way for citizens to say I don't like the way the current legislation exists, Section 704 of the 1996 Telecom Act. Whenever people hear about it, they get very concerned about it because there is nothing they can do because of this legislation. How many people are concerned would be helpful to us as we move forward. If only a handful of people go on this registry and register a complaint, that tells us one thing but if we have hundreds then that tells us something quite different. It would only be so people who register could have their voices heard. Right now citizens who are concerned have no place to go. They can write letters to the FCC as I have and very likely nothing will happen. This just makes it a state initiative to identify people who are concerned so we perhaps can do something.

Roberge: Is this appropriate for an advocacy group? I don't know that it's an agencies responsibility to survey the feelings in New Hampshire. I would want to go back and talk to my leadership about this. Any data that we hold, we would have to make sure that the data is safe and valid. I just wonder if it's more something that an advocacy group would take on.

Abrami: Michelle, after you talk to your leadership, can you just drop me a note so I get a sense of where they are?

Chamberlin: So, actually the registry was an add-on to the first part which is a website that contains information about exposure to electromagnetic fields. This is informational and the add-on is to assess how many people are concerned. So what about the first part does this seem to fall within the purview of your organization?

Roberge: Before I make any comment on that, I would want to talk to my leadership. Right now, we are knee deep in Covid, as you know. I would want to talk with them and I can come back and share with this group what I learn.

Abrami: We have another six to go through and we have forty five minutes so we are going to move along.

***RECOMMENDATION 4- Require every pole or other structure in the public rights-of-way that holds a 5G antenna be labeled indicating RF-Radiation being emitted above. This label should be at eye level and legible from nine feet away.***

Abrami: Basically, with antenna being in the public right of way, I thought it wouldn't be a bad idea to have the poles labelled to that effect as they may be on telephone poles or light poles, etc. Current towers are usually surrounded by barbed wire fence or some structure around it at the base with a sign saying....don't climb the fence. Obviously, there are different reasons for that. That's all this is, to label the pole. Beware of the device on the top of the tower. Industry would have to label the poles. Can we open that up for discussion please?

Cooley: Just more of a comment and again, I still have to talk to my membership and my legal department. There are other entities in the public right of way that also use low level non ionizing radiation. So, I question if this is discriminatory. In the public right of way, you do have utilities, electricity lines and you also do have the cable industry deploying micro-wireless facilities also using 5G. Again, I have to talk to my members and legal and I wonder if this is a discriminatory practice should the commission endorse this in the majority report.

Abrami: So what you are saying is any device in the public rights of way emitting RF should have this sign. That way, it's not discriminatory. Is that correct?

Cooley: I don't know. I will have to speak with my attorney. I flag that as a concern. There are other entities in the right of way and this is targeting one.

Abrami: Brandon, do you have any comment on this one?

Garod: It's close. I think it's dangerous to apply if it only discriminates against one type of entity then it's definitely preempted. That's actually contrary to what the Portland case said. In the Portland case, they found that different types of restrictions can be applied to different types of infrastructure. Really, the key takeaway is if the effect of whether something discriminates against a particular company of particular type of infrastructure would have the effect of prohibiting their entry into the state to provide services, then that would be preempted. But, if it's simply requiring a certain type of infrastructure to provide a warning that is consistent with the type of radiation that is emitted by that type of infrastructure and placement of that type of infrastructure, I think there is an argument that could be made that that is permissible and wouldn't be preempted.

All of this is sort of fuzzy. I think that is in line with the court when the court prohibited the FCC from regulating too broadly a state or municipality's ability to regulate aesthetics that may be discriminatory against one particular entity but as long as there is a reason for it and it's not prohibiting their entry, I think there is an argument that can be made that it may not be preempted.

Sherman: I agree with Beth in a way. If there are multiple devices emitting RF, we should not have that warning limited to the telecom. Maybe the warning should read that there is an RF emitting device on this pole, no matter what that RF is. We know that cell towers look like. Right now, we don't know what 5G or small cells look like and we may not recognize that that emission is occurring from that pole. Rather than being specific about the industry, we should be specific about that which we are trying to protect the public from which is this level of RF exposure and that would get around Beth's concern. If it's a cable company or telecommunications company or wireless company, the point is to identify that that exposure is occurring.

Gray: The first thing you need to say is who is responsible for putting the sign up there. If it's the owner of the antenna, you need to say that. Second, your problem with this recommendation is that you go back to your preamble, nothing has been proven about the health effects so you are talking about potential health effects. Do I have to put a warning on the side of my house because it has a transmitter that transmits my water usage and electric usage to people who go by? Again, this needs to be looked at carefully because it could be a whole lot of impact if it's not done right.

Abrami: That's good, Jim. Thanks. I will take a crack at modifying this one and we will talk about it again.

***RECOMMENDATION 5- Require that schools and public libraries migrate from RF wireless connections for computers, laptops, pads, and other devices, to hard wired or optical connections within a five-year period starting when funding becomes available.***

Wells: This is mostly about schools and public libraries where the environment has already been fitted out with wifi. There is strong evidence that the RF associated with wifi might have greater impacts on young children. The Precautionary Principle would indicate that alternatives to RF would be preferred. Two possibilities would be to go to hardwired connections to every device or use a different frequency range and go up into the optical range where there are not likely to be any health effects to that. One of the things that the state of New Hampshire could look into is that classrooms could be fitted out with a device like Lifi which is an LED lighting fixture based optical data transmission. We need to look at how we fund this but Carol recommended one possible fund may be the FCC's E-Rate program for telecommunications and IT for schools and libraries. We figured if funding was procured then five years would be a reasonable amount of time to complete a project.

One thing that I think is an important point to note is that the optical means for data transmission is much faster than RF. So, essentially you would be saying, let's just skip RF and 5G and go into the next generation directly.

Gray: Certainly the opposition report on this one would be that if you link it to funding, and implementation, you take out the word, "require" and it's better and the schools will do it because you are paying for it and it's better. I don't have a major thing on this except the word "require".

Abrami: So just encourage schools and libraries to look at alternatives including Lifi.

Gray: you would want to put in there that when public funds or whatever funds are available.

Abrami: right. The reason we put about the funding in there is that schools have spent a lot of money putting this infrastructure in place and it would take a lot to reverse that course. Hardwire is an option but Ken's suggestion of Lifi and our understanding at this point, is that it wouldn't be an expensive option relatively speaking.

Wells: It appears that Lifi would be plug and play. It also involves an upgrade to a more cost efficient lighting. You might actually come out ahead on this. We would have to look into what the actual costs would be and savings but there is a possibility it would offset quite a bit of the cost with energy savings.

Gray: Just as a caution when you put something in your report that you don't have to do it until the funding is available, you are already that it's not that bad. Certainly, the cheaper that you can make it would mean that a parent of a child that is sensitive to electromagnetic radiation, could fund the conversion of one classroom or whatever. Just think hard about this one if you go forward with it. What if your data from studies proves that it's not harmful, then mandating is the wrong thing to do. In my example, the funding will dry up if the radiation is not harmful.

Wells: The E-Rate funding is not tied to harm. It's tied to telecommunications and IT in schools and libraries. But it's a good point you raise about taking federal out of the description of the funding. It is possible that you could get a charitable donation to convert school buildings. That's a good idea.

***RECOMMENDATION 6-Establish new protocols for performing signal strength measurements in areas around cell tower radiators to ensure compliance with regulatory radiation thresholds and to evaluate signal characteristics known to be deleterious to human health as has been documented through peer-reviewed research efforts (e.g.,[1]). Those new protocols are to take into account the impulsive nature of high-data-rate radiation that a growing body of evidence shows to have a significantly greater negative impact on human health than does continuous radiation. The measurements should be taken in regions surrounding the tower that either are occupied or are accessible to the public. Commissioning measurements are to be performed when the site is installed and at regular intervals if required by state statute or municipal ordinance such as those required by the town of Burlington, MA [2]. Measurements should also be collected when changes are made to the tower that might affect its radiation, such as changes in software controlling it. Measurements should be performed under worst-case scenario conditions when the site is transmitting at its highest levels.***

Abrami: One thing as a state that I think we need to know is.... if these antenna generating RF are even generating within FCC guidelines? This recommendation talks about what the state should be doing about this.

Chamberlin: This recommendation really has two parts. The first is to come up with new protocols for performing the measurements. The way we measure RF right now is the way we have been doing it for 50-60 years. It averages signals and does not take into account the summative effect of having multiple transmitters. One thing the FCC guidelines do not take into account at all and that is, in the last thirty years think of how many transmitters have been added to the RF spectrum. Now we are not being illuminated by a single source like a local tv station. We are being radiated by cell towers, our own cell phones, wifi and the way that measurements are taken now don't take the summative effect of those radiation sources into account. The first part of recommendation six takes that into account and prescribes a different way of performing these measurements. Also, what's being found is that it's not the continuous radiation that has the greatest effect on us but it's the transient nature and impulsive nature that has the greatest deleterious effect on health. The way this is worded, takes that into account and specifies a new way of doing measurements.

The second part says, you have to make the measurements and I could find no evidence that a cell tower ever has to be measured unless maybe there is a report of someone thinking the radiation is too great. The FCC doesn't have a commissioning for cell towers. I am familiar with this from working with the FAA. Any time you install anything, you always have a commissioning measurement to make sure it's performing according to specs. The cell industry from what I have read has basically made calculations about what power should be radiated from certain antennas and they say these calculated powers are below the FCC threshold so we are good. However, I know from experience that you can get what is called terrain or building focusing of electromagnetic waves that gives you far greater signals than you would expect from simple calculations. The second part of this says whenever you commission a facility, you have to go and make measurements under worse case scenarios and you have to do it using the new protocols.

Just basically wanting to make sure that the towers are putting out the types of power that have been calculated and that those powers are below the FCC thresholds.

Wells: Thank you, Kent. That's really excellent. I would make one suggestion though. When you talk about focusing by buildings and terrain, could you also add beam forming?

Chamberlin: You mean beam forming from the antennas? I wasn't sure how much detail I should go into but I am thinking when you set up a test protocol, you specify the beam forming will be at the location of the receiver. It's actually buried in the worst case scenario statement.

Wells: right. I was just thinking that you acknowledged that the radiation can be focused by buildings and terrain but it can also be focused deliberately.

Chamberlin: I will add that in. Thank you.

Roberge: I just had a question in terms of implementation of this recommendation. How do you envision that? Is that something that the cell phone company would do after installation? Do you envision a reviewing body of that or an independent analysis? It is unclear to me how this would be implemented.

Chamberlin: I was thinking it would be a third party or some independent measurement organization, perhaps even the FCC.

Roberge: I come at this from a regulatory standpoint. If you put a requirement out there and a measurement happens. It's fine if it all works out great but what happens if the measurement comes in and it's not consistent with what requirements are or is it a true requirement? Or is this just a recommendation? It's challenging to implement something like this if you don't have a true standard and you don't have consistent measurement protocols. What happens if it's above? Who will be the authority to make corrections or enforce? If you are thinking of this from an enforcement standpoint, for instance if this cell tower measures above, what happens then? From an implementation standpoint there can be challenges with that.

If you are thinking of implementing this as a licensing or commissioning and enforcement of it then there would be a cost associated with it establishing a protocol program whether it's on the federal level or state level. Who is the regulating body for that? Just a couple of thoughts there.

Abrami: We talked about this. We can get lost in the weeds on the detail. This isn't words or legislation. For that we would have to have a lot more detail than what you see here. We are saying we need a better protocol and the state has the right to ask for an independent person to measure at the worst case scenario that it's within FCC standards. This is not trying to change FCC limits on this. I understand asking, who do we go to if it's out of compliance. It could go to the courts. Either this is a good idea or it isn't a good idea. To me, this is a good idea. I don't have a comfort level that the industry is taking into account all the other towers and RF soup in the area that they aren't really above the federal limit.

What we are saying as a commission is, we think it's a good idea to use an independent body to measure and if it doesn't pass the test, then we as a state want to say you have to turn that tower off. Now they may come back and say, it's not our tower, it's the one down the street. These are the discussions that should be done at the federal level but it's not. We need to move forward with this recommendation and then the detail comes in if someone picks this up to write a bill where we would add more detail on some of the things you are bringing up Michelle.

Chamberlin: I can make this really brief. Cece linked in the text chat with some certification requirement from Burlington, Mass. I will read that and see if I can add some of what they have done to our recommendation and move forward with that.

Heroux: Actually, this kind of a situation has been taken into account in the past in relation to the tops of buildings where you have forests of radiating structures and this is why advanced equipment that has frequency analysis capability was created. If these locations exceed, for example thermal limits, there is a requirement that says you have to have a power intensity reduction. But it has never been taken into account for the general environment outside these facilities. Essentially, because it's assumed that outside this region there is no hope that you will ever reach thermal levels. But if you are taking into account crest measurements and peak characteristics, of course the situation can change very substantially.

***RECOMMENDATION 7- Require that any 5G antennae located on a public right-of-way or new cellular phone antennae of any type, be set back 1,640 feet (500 meters) from residences, businesses, and schools within a municipality enforceable by the municipality during the permitting process unless all owners of a residence or business or a school district waives this restriction.***

Abrami: We went back and forth of this one in the work group. I will let Paul explain.

Heroux: Essentially, here there is no desire to challenge the FCC on power levels. There is no desire to challenge the availability of wireless services. There is just a desire to have these towers with a setback from dwellings where people live or work.

Gray: Your 500 meters is .31 of a mile. The recommendation doesn't take into consideration anything about the transmission, what the power level is at any particular point along that .31 of a mile. I went to look up the things that were listed there and found it very difficult. It took me to Google Docs. I looked also at our webpage to find them. Again, I think if you are going to include something like this then you need to start getting into more detail. But a third of a mile would eliminate cell antennas. There are an awful lot of people you can pack into a third of a mile.

Cooley: Again with the caveat that I need to discuss this with members and legal department. I do think there is an argument that can be made that this violates section 332 of the Telecom Act. That is, you are trying to tell providers where they can and cannot site facilities which could have the effect of impeding service thus increasing the cost and providing a barrier to entry. You are saying where we can and cannot go which has been ruled as a defacto moratorium and has been ruled unlawful. Again, I need to run that up the chain but that is my initial impression.

Wells: this is a section where we need to make a distinction. It is referred to as 5G and we need to have an RF definition. The thing that is unique about 5G is not the frequency or the power levels but the proximity to people. This recommendation talks about a setback which is dealing with the unique quality of 5G. It's very close to people. There are some other applications and implementations like smart meters that might also fall into this. We need to come up with a definition of what sort of transmissions we are talking about because to call it 5G is to give it a trade name rather than a physical definition.

***RECOMMENDATION 8- Require power intensity disclosures for renters and buyers and for public buildings (locations where the general public may go)***

Wells: This recommendation requires power density disclosure for renters and buyers and also public buildings. The idea here is that some agency of the state would also be a recipient of those readings so the public has some idea of what they are exposed to. I understand that the objection has been made many times that there is no safe threshold that has been specified. But we know that just as kitchen appliances have an energy usage scale on them showing where they fall on the range of low energy and high energy use, the same sort of scale could be understood by buyers and renters that perhaps less intense energy is more desirable than more intense energy. They can figure out where they stand in that continuum.

One other part that is important on this, in order to make this practical, the instruments used need to be affordable and available. We have identified one particular example, the GQ 390 meter and the price is under \$200. Some agency of the state could loan them or real estate agents may find it's more convenient to own their own.

On the state owned ones, it would be easy to get the manufacturer to verify they are all benchmarked and consistent in their sensitivity.

Abrami: the more thought I give to this one, there are really two pieces to this, the buyers and the sellers and then any public place. I think any public place would be really unwieldy. But the buyers and sellers, it's akin to getting a water test and a radon test. That's, basically what we are talking about.

Sherman: I have a concern. I see this running smack into the realtors. You and I have worked with them in the past and I am just thinking of a pre-recommendation compromise and one thought would be rather than requiring of a measurement and Michelle would probably tell us would require funding to have this program. In other cases, haven't we required full disclosure if you have knowledge of issues on the property. The seller would be required to disclose radon levels, lead paint, all of these other things. Couldn't we say the owner would need to disclose potential RF exposure or known RF when you sell a property?

Rather than putting in a whole new infrastructure, I think this is going to run into pushback at the fiscal level and at the regulatory level. But a lesser would be to require any known exposure to RF or RF levels.

Gray: This one is so broad reaching. What happens when I change one of my routers? Do I have to go retake the measurement and redo the posting? Again, we don't know what the safe level is. One of the things that could be done if we did know what the safe level is would be to set a limit up to this. And I know Dr. Chamberlin says it's the way we do beam forming and all that. This would be very difficult to do.

Abrami: the real estate folks have already weighed in by the way. You can imagine which direction they weighed in on.

Roberge: I was going to add in. Senator Sherman touched upon it. Depending upon how you envision this being implemented, there could be costs associated if this gets delegated to an agency to implement.

Chamberlin: we would definitely have to specify the conditions under which the measurements would be taken. I would say that when you are going to take these measurements for real estate purposes, you would turn off all internal sources so everyone would be on the same level playing field.

Abrami: Ken, you mentioned the Bio-initiative 2012 report, the 1,000 microwatts per meter squared.

Wells: There is a recommended maximum level by the Bio-initiative 2012 report of 1,000 microwatts per meter squared. This is a pretty high level. This is a peak exposure. These meters could measure peak and averages over 24 hours and could measure frequency. There is quite a bit of information that would be available and I think it would be valuable for the agency that collects this. It would allow them the basis for building a map of RF around NH and give them data for pursuing future public health investigations about say cancer clusters in relation to transmission or cancer clusters that are not related to transmission but perhaps some other environmental sources.

Abrami: This, ties back to Kent's proposal about a database but this would be real data. There could be hotspots in a neighborhood or a town. All we are saying is, maybe before you buy a house, you want to know about it. We went through this with radon and lead paint. The more we see radiation flying every

which way, I think this is prudent. It doesn't have anything to do with the industry or the federal government. It's just informing the buyer or the renter that you might be in a pretty hot zone.

Heroux: Actually, Senator Gray is right. If you install another antenna, the levels will change. Essentially, this is what you are trying to determine by a number of these measurements to see what the evolution in a particular place or state how radiation is evolving. These measurements are fundamentally fairly easy to perform if they are performed by an instrument. They are probably preformatted so compiling them could be relatively simple.

Woods: Going back to the fact that we could sort of massage this. The concept is very good and this is a recommendation that says to the public besides the legislators in this report that this is an area that we need to consider. Now, the details are going to be a morass to say the least. But I think as you pointed out earlier Pat, these are areas that we see as a commission that need attention. As Tom said, the realtors are going to have some input but I think that's for another day. To the Legislature and to the public, we are saying we feel this is an important issue.

Ricciardi: I just wanted to say that maybe an RF map would be good for people who are already microwave sick. That way they would know where the transmitters are the highest and could avoid them.

Wells: I think that's a great idea. I just wanted to point out that Cece Doucette put something in the chat that there is already an RF meter loan program in Ashland, MA through the public library. This would not be hard to do. They are not terribly expensive.

Gray: It appears what you really ought to do after listening to Dr. Chamberlin, is split it into two. If you are transferring real estate then taking measurements with wifi turned off etc. may be appropriate.

But if we are talking about posting for the public, then it's radiation when I walk into that building which would include all the sources inside the building. It is unclear what you are really trying to do with this. Are you trying to mix these two concepts together? You've got to remember that exposure for most people would be a long term thing that would affect them and not a short term thing.

Abrami: I agree. I think I said this earlier. Comingling the purchase of property vs posting measurements in public areas in the same recommendation is a tough one. If anything, we could split them out and vote separately.

Wells: How about if I take the public building part of it and make that a separate part or possibility for future consideration?

Abrami: that would probably be better.

***RECOMMENDATION 9- Require all new cell phones sold in New Hampshire come equipped with a sensor that will stop the phone from radiating when positioned against the body.***

Heroux: This speaks to the fact that there is an opportunity in cell phones themselves, to mute the radio emissions when the phone is held against the body. There are various ways of implementing this. Initially, I presented it as the fact that the phone should be hardwired to do this. There are many other ways to do this. The weakest way is to say we require that you can download an application that will make your phone behave that way. The most sensible one might be to have a toggle on the phone or a menu item that allows the phone to function in this manner. If you choose not to have your brain radiated, you can choose that function on the phone itself. Between these extremes of you having it hardwired or you having to do a lot of things to eliminate the radiation. Or there is another possibility the phone could come with the toggle switch installed and you could disable it if you wish. That means you choose and you agree that you believe that this risk is not substantial so you prefer to use the phone against your head rather than avoid the risk.

Abrami: I think it has to be individual preference. We want to give those who are concerned about it a chance to have something that will help them.

Wells: this is the first that I have heard of that last suggestion and I think that is a good one that the phone is delivered to the customer with the safety option on and the user has the option of disabling the safety function.

Sherman: One other option in this would be I believe this is true that they have this capacity but have opted not to install it on phones, the idea of intrinsic shielding that would protect the customer from radiation. There was a move about fifteen years ago to develop sleeves that you could put over your phone to shield against the RF that was emitted toward your head. I like the toggle idea. I would not go for the requirement that all phones shut down if you put them by your head. The toggle and personal choice is a great option. Or the other part you could put in there would be the intrinsic shielding.

Gray: Are we creating a scenario where phones are not going to be sold in NH anymore?

Abrami: this is simply a recommendation to the cell phone manufacturers to consider.

Gray: We are not as big as the state of California who has driven emission regulations by state regulation. I don't know that the cell phone industry is going to modify what is available to customers because of the state of New Hampshire.

Abrami: the cellphone industry knows that holding the phone against your head may not be the best thing because it's in their legal section. There must be a reason why they are saying that. So, if you believe that then why don't you install an option where a user could turn it off. That's all we are doing as a commission is recognizing this issue and making a recommendation. It's got to start somewhere. It's my understanding that other states are following us on these proceedings. If we take that first step, other states may also weigh in on it.

Ricciardi: I just want to add to that is that our job is to protect the residents of New Hampshire. That's what we are doing with these recommendations. Again, they are recommendations, not law. We have to do that. With all due respect to everyone, here all opinions are appreciated but as we know, the majority will write one report and those who are in disagreement are entitled to write their own. I would caution on making too many changes to the one we did if the majority agrees with it. Since the other report will be written anyway. Thank you.

Gray: The point that I was trying to make in a lot of this thing is that if we go right back to the first paragraph and we say these things aren't proven. So to make recommendations that may impact the cell phone may cost more in NH. There are reasons why we should be cautious in the recommendations that we make.

Heroux : I take Senator Gray's point that New Hampshire is not as large as California and in some instances may not have the same influence. But I have to say, I am a fan of New Hampshire and maybe you are as big as you feel.

Wells: I just want to remind everyone about New Hampshire's role in MTBE. We are not without influence.

Abrami: Let's do number ten. Eleven is still under consideration and twelve we can talk about next time.

***RECOMMENDATION 10- Propose legislation that would facilitate the implementation of fiber optic cable connectivity deployment and internal wired connections to serve all commercial and residential properties statewide.***

Abrami: it's just basically a statement that the state should promote fiber optic cable. Carol had to leave. I am going to let her weigh on this next time. Members of the work group, I want to work on their recommendations based on this input. Jim has some good comments in his as well as the others and should take those into consideration. We are running out of time. Unfortunately, we lost almost four months. I couldn't even get zoom time from the House. Good thing Kent has been gracious enough to let us use the University of New Hampshire's zoom account.

I think we need to have more than a meeting a month.

Sherman: We are having trouble on the Senate side with all the zoom meetings we need to have. So if we could have all the materials we need for the next meeting well in advance and preferably have a longer meeting rather than three shorter meetings and just get the work finished as best as we can.

Abrami: I'd like to do it in three weeks. How about Tues the 22<sup>nd</sup> at 9? We will make it a 2.5 hour meeting. Kent will set that up. Thank you everybody. We will make our way through this.

**V. Next meeting via Zoom: Sept 22<sup>nd</sup> 9-11:30**

Meeting Adjourned at 11: 15 am

**Text chat during Zoom meeting:**

00:51:58 Paul Heroux, PhD: Identify Health Impacts of Environmental Factors: Barack Obama and Joe Biden believe it is critical to understand the relationship between environmental factors and risk or onset of disease, particularly cancer.

They support the efforts of Senators Clinton and Hatch to expand CDC biomonitoring programs, and as president, Obama will expand the collaboration between the CDC and state public health agencies across the country to increase understanding and improve treatment of individuals negatively affected by environmental factors.

01:19:35 Cece Doucette: For Recommendation 2: Might NH consider taking a leadership role with peers in all other states, share the Commission's final report, and encourage them to make a similar request to their federal delegations? This approach might help to get meaningful action to protect the public sooner rather than later since the 4G/5G small cells are going up in real time, and children are being given wireless devices to access their education with no safety instructions.

01:29:43 Cece Doucette: Thank you, Dr. Sherman. It would be helpful to the public to label every RF-emitting device, including utility smart meters and the collection devices mounted on poles outside of residents' homes.

01:36:19 Cece Doucette: For Recommendation 5: Please vet all new technology through non-industry funded scientific investigation before exposing our collective children. LEDs and Li-Fi may have risks, but hard-wired technology to the premises with Ethernet cables and adapters is proven safe.

01:43:13 Cece Doucette: For Recommendation 6: Please see Burlington, MA Small Cell Policy, which requires an annual recertification by an independent expert, and the wireless vendor pays the town to complete the annual recertification.  
[http://www.burlington.org/town\\_government/small\\_cell\\_information.php](http://www.burlington.org/town_government/small_cell_information.php)

01:48:36 carol.a.miller: I apologize but I have a hard stop at 11am this morning. I will just disconnect when that happens.

01:48:53 Beth Cooley: Same here

01:56:29 Cece Doucette: For Recommendation 8: We have modeled an RF meter lending program at Ashland Public Library, MA. Others are emulating this too. It was based on kill-o-watt meters put on loan in our libraries by the energy industry.

02:04:35 carol.a.miller: Again I apologize that I must leave the meeting now.

02:06:10 Cece Doucette: Thank you, Ken.

02:09:00 Brandon.H.Garod: I apologize but I have to leave for another meeting.

02:09:26 Cece Doucette: Please consider adding a new recommendation to educate the public. I drafted a fact sheet with the MA Department of Public Health, and have built a non-profit with quick on-line courses that the public could take today and have the right to choose how they wish to use the devices within their control. Please see <https://www.wirelesseducation.org/store/l2/> and <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnx1bmRlcN0YW5kaW5nZW1mc3xneDo2OWYxMmNhY2ViNDcwMmQx>

02:15:05 Cece Doucette: For Recommendation 9: Shielding can be helpful, but unless the shield absorbs the radiation, it will deflect it back into the hand, other body parts, and other people/children in the vicinity. We have seen hand cancers from cell phones too. See attorney Jimmy Gonzalez testimony in Florida: <https://www.youtube.com/watch?v=XitM4lkpvgo>

02:17:31 Marty Feffer: Unfortunately, only humans will be able to make the choice to limit their exposure to cell phone radiation with the ideas you are discussing. The natural world who are also being irradiated, and have been, are suffering just as much, if not more, from exposure. Our responsibilities run deep and wide if we honestly look at the complete picture.

02:21:09 denise ricciardi: to sign off

02:22:51 Paul Bloede: My apologies for asking if I was being spoken to, earlier; I hadn't studied my notes from last time, closely enough, apparently, to realize there is a Paul who is truly a member of the commission: Dr. Paul Heroux. Again, my apologies.

02:23:51 Marty Feffer: Thank you for your work. Inspiring to other states.