NORTH CAROLINA DEPARTMENT OF INSURANCE

RALEIGH, NORTH CAROLINA

IN THE MATTER OF THE FILING	)	BEFORE THE
DATED JANUARY 3, 2024, BY THE	)	COMMISSIONER OF
NORTH CAROLINA RATE BUREAU	)	INSURANCE
FOR REVISED HOMEOWNERS	)	
INSURANCE RATES	)	
	)	DOCKET NO. 2157

COPY

BEFORE: AMY FUNDERBURK, HEARING OFFICER

TRANSCRIPT

OF

HEARING

VOLUME IV - P.M. SESSION

Raleigh, North Carolina

Thursday, October 10, 2024

1:41 p.m.

A P P E A R A N C E S

On behalf of the North Carolina Rate Bureau:

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Hearing in the matter of the filing dated January 3, 2024, by the North Carolina Rate Bureau for revised homeowners' insurance rates, at North Carolina Department of Insurance, 3200 Beechleaf Court, Raleigh, North Carolina, on the 10th day of October, 2024, at 1:41 p.m., before Wendy Sawyer, Court Reporter and Notary Public.

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(No exhibits offered.)

P R O C E E D I N G S

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HEARING OFFICER FUNDERBURK: Back on the record. When we took our lunch break, Mr. Friedman, you were continuing your cross examination of Ms. Mao.

Ms. Mao, remind you, you are still under oath.

Is there anything we need to address before we resume cross examination?

MR. FRIEDMAN: I don't think so, ma'am.

HEARING OFFICER FUNDERBURK: Mr. Friedman, please resume.

CONTINUED CROSS EXAMINATION

BY MR. FRIEDMAN:

Q. Ms. Mao, I'm going to go back to Aesop 38.

A. Can you remind me the page?

Q. Yes, ma'am. It is -- we're in Book 3 again on Exhibit 12.

A. Okay. Okay.

Q. And I'm on page 58. And I'm particularly looking at the 3.4.

A. Okay.

Q. And I'll read that into the record.

A. Um-hum.

Q. Appropriateness of the catastrophe model for the intended purpose. The actuary should evaluate whether the catastrophe model is appropriate for the intended purpose and take into account the following.

And applicability of the historical data to the extent historical data are used in the development of the catastrophe model or the establishment of catastrophe model parameters, the actuary should take into account the adequacy of the historical data in representing the range of reasonably expected outcomes consistent with current knowledge about the phenomena being analyzed.

And then developments in relevant fields, the actuary should make a reasonable effort to be aware of significant developments in relevant fields of expertise that are likely to materially affect the catastrophe model.

Let -- I'm going to talk first about the RMS historical and the AIR standard.

A. Sure.

Q. Did you -- before those -- put it this way. Who selected those, to use those two in particular?

A. Select those model for?

Q. For the use for the hurricane losses, not for obviously the other ones were -- who selected those? So let me back up.

So I understood yesterday that you stated that in some way the Aon (sic) WSST and the RMS medium term affected the determination of the losses. Is that correct? Or were used?

A. So those models are used for different purposes.

Q. Right. So that was what I was confused on yesterday was whether you used purely the historical and standard models to calculate the hurricane losses and the loss adjustment expenses.

A. I used the historical and long term model to determine the hurricane loss cost for this rate filing. And the loss adjustment expense is not a model output. It's an additional assumption applied to model the loss.

Q. Okay. So who selected the AIR standard and the RMS historical for use for the loss cost?

A. This has been a long standing industry standard practice to use a long term view and a historical view for rate filing. And I want to also refer to the Florida Commission also requires to use a historical view and a long term view for the hurricane loss cost.

Q. Did the Bureau tell you to use AIR standard as one of your two models?

A. This, again, I -- I've made the rate filing for Bureaus since two filings ago. So this decision has been made before my time. So my assumption is this being discussed with the Bureau and agreed by Aon and the Bureau to use this assumption.

Q. Okay. So did you conduct your own model suitability analysis prior to using the AIR standard on in this file?

A. I conducted model evaluations, ASOP evaluation. And in my evaluation, I find the historical and the long term view of the corresponding AIR and RMS model are suitable for this filing, for all rate filings.

Q. But prior to running in this filing the AIR standard, before you filled out your Rule 38 verification, did you conduct a model suitability analysis at that time? Not when you later filled out your Rule 38 certification, but at the time you first used the AIR standard model.

A. The first time I used AIR standard model is, probably, I say, in 2004. So are you asking whether or not I did --

Q. I'm talking about this filing. Did you --

did you conduct a model suitability analysis prior to running the AIR standard in this case?

A. Yes. The ASOP 38 for this model is AIR Touchstone Version 9. It was released in 2021, and I conducted ASOP 38 review for this specific version. I believe it's in December 2021, way before this filing was started.

Q. Okay. Right. So you did you conduct an independent one for this filing?

A. No. I didn't because it is our standard practice to evaluate model for the general purpose of the refiling --

Q. Okay.

A. -- for the United States.

Q. And as far as the RMS historical, did you conduct a separate model suitability analysis prior to using it in this filing?

A. Yes. That -- that model used for this filing, I believe it's also version that released in the summer of 2021. And as I recall, I conducted a completed model review at the end of the year 2021 for both AIR and RMS models.

Q. So that would be prior to performing this -- your work on this filing?

A. Correct. It is our workflow to conduct the ASOP review. First, to conduct the model evaluation, then I rely on model evaluation result to complete ASOP review and then release this model for re-filing for the United States.

Q. Okay. So, then as to the AIR WSST and the RMS medium term.

A. Um-hum.

Q. You only use those, as I understand, it for the CAR, the net -- the CAR, and the net. Is that correct?

A. That was for the net cost of reinsurance, those model generate the loss curve for net cost of reinsurance analysis. That's correct. And also for part of the CAR to generate the expected deficit of -- of the FAIR Plan and the Beach Plan. Use the same models. Yeah.

Q. Do RMS historical and AIR standard also have a function for calculating the net?

A. That part is, I believe, each of them, each of the model have a feature, separate features that you can do -- you can perform similar functions, but those functions are not utilized by Aon. That's because Aon has a more streamlined process to blend model.

As you know, if you work on each model's own reinsurance platform, then it's difficult to blend the model results because the model are developed independently. They have -- they have different functionalities. It's difficult to combine result on two different platform.

Q. But it is possible to use only the RMS historical and the AIR standard to calculate the net. Is that correct?

A. It is possible, but it's not the -- the reality what the reinsurance industry is doing, and those are not accurate results.

Q. Okay. And it's also possible to use AIR standard and RMS historical to calculate the CAR?

A. It -- it's possible.

Q. Okay. And you testified to this yesterday, but I believe in this run of the AIR WSST and the RMS medium term, in every instance, it produced higher severity than the RMS historical and the AIR standard. Is that correct?

A. That's correct. For these two version for the -- the two models for -- for -- for use for these refiling and that is both modeling vendors view that warm sea surface temperature generate higher than historic -- the standard and the medium term generate higher than the historical.

Q. So that's pretty much what always happens when you use those. They generate higher severity and frequency?

A. For AIR, it is always the case. That's because AIR's warm sea surface temperature view is a subset of their history -- historical view. So it's a subset means they only look at frequency/severity during the warm phase.

And, but, however, this is not true for RMS model because RMS model medium term view represent what they believe, what will happen in the next three to five years. And, right now, RMS, based on this model, they believe the next three to five years hurricane activity will be higher than long term history average.

However, if you go back to four years or maybe longer, I believe that's a 2017 release, RMS actually believe at that point, the next three to five years will be lower than the historical long term average.

Q. Okay. So sometimes RMS medium term produces higher losses in severity than RMS historical and sometimes the reverse?

A. Correct.

Q. Okay. But in this case, it was all higher?

A. In -- for this case, yes. It is higher.

Q. So who made -- when Aon began working for the Bureau, who made the decision to use RMS medium term and AIR WSST for the net and the CAR?

A. This is a discussion with the Bureau and especially for reinsurance. I believe, as I testified, the medium term view and the warm sea surface temperature view are used by reinsurers to determine to price the reinsurance. Therefore, for reinsurance purpose, for the NCOR calculation, it is -- so the decision being made based on what's being used by the industry.

Q. So who made the decision? Aon? Or they -- was it already what the Rate Bureau wanted?

A. That, I -- that happened before I joined this project, so not --

Q. So you don't know who made that decision?

A. I don't know who made the decision back in 2018, 2017.

Q. Okay. And for this filing, did -- not back in 2021 when RMS medium term, I think you said, came out and maybe the current version of AIR WSST, did that come out in 2021?

A. They are. So both model version uses before this filing will came out in 2021.

Q. Okay. So I'm not talking about any

evaluation you made of those as far as their appropriateness for the CAR and the net cost of reinsurance in this file. But in this filing, did you conduct a whole new model suitability analysis for the use of the medium term and the WSST for CAR and net?

A. I don't do model suitability study for each individual project. I do model suitability for general usage for the United States that cover for this filing.

Q. Okay. So you didn't do any unique one given the uniqueness of the Rate Bureau as opposed to a single homeowner's carrier in another state?

A. That methodology, single homeowner of the carrier, is reflected in our --in our methodology. But in term of the use of model for state, for rate filing, there is no additional uniqueness.

Q. Okay. So in any way, would the fact that you're conducting a net and CAR analysis for a hypothetical company that's supposed to be submitting aggregated data, in any way would that affect the outcome of the CAR and net calculations with medium term and WSST?

A. So can you repeat your question?

Q. Yes, ma'am. So in your -- well, you stated that you don't make -- state specific model evaluations as far as using the WSST in the medium term for CAR and net. Is that fair?

A. I conduct model evaluation, ASOP evaluation to cover every coastal states, both long term and the medium term historical and warm sea surface temperature.

And since the scope of my review cover the entire United States and cover both views, and so I don't do additional model evaluation every time I take on a new client project.

Q. So did you do any specific model evaluation of the WSST in the medium term for the hypothetical one?

A. So for the hypothetical one, it's based on the medium term view, and it -- it's not appropriate to base on the long term view. So --

Q. So as -- maybe I misspoke. Before using the medium term and the WSST for the CAR and the net, did you do any evaluation of the -- any uniqueness of North Carolina, given that it has the hypothetical one?

A. In our model evaluation framework, we include North Carolina in the testing, and we show the difference, the impact of the warm sea surface temperature view and other sensitivities, other variables.

So, we don't do additional testing for each project. Not -- we didn't do additional model evaluation for this project.

Q. Okay. So as I understood your testimony, Aon determines whether medium term and WSST are appropriate for the CAR and the net on a national basis?

A. The reason Aon believes those are appropriate is because Aon place reinsurance for clients. That are the model we use to place reinsurance for those clients. And since the NCRB's NCOR provision and the CAR based on reinsurance view, Therefore, those models, medium term view, and warm sea surface temperature are appropriate for this usage.

Q. I'm not asking whether they are appropriate. I'm asking whether when Aon determined that those were appropriate for the net and the CAR on a national basis, did it make any special determination for North -- whether they were appropriate uniquely for the hypothetical one?

A. As I said, we determine the national usage, and we look at each state. And, I don't under -- I don't quite know what you mean special in this case because we look at Florida, North Carolina, South Carolina, and we determine the result we see are -- are reasonable. So we -- we -- we feel those models are appropriate to use.

Q. Okay. Other than the fact that the results from the medium term so the results from the medium term and the WSST according to North Carolina were shown in what you produced, along with your report. Is that right?

A. So again, what's your question? Other than?

Q. The AIR WSST and medium term results as to North Carolina were part of your -- what you produced as part of your expert report. Is that --

A. So are you saying, yeah, we generate -- are you saying we generate, NCOR based on WSST model and medium term model for NCRB net cost of reinsurance? Is that your question?

Q. No. Maybe I'll -- did you produce any data as part of your pre-filed testimony that showed what the AIR WSST results for North Carolina in particular were?

A. In particular?

Q. North Carolina.

A. So the -- the WSST, we -- the result is based on particular NCRB's exposure. It is particular to North Carolina.

Q. If I were to pick up all of the data you produced from the results of the AIR WSST or the RMS medium term, would I see anything specifying that those were uniquely the North Carolina results?

A. It's not in that general report, but as I mentioned, we have a model evaluation framework that include those unique data point for North Carolina that are part of my review.

Q. Did you produce anything for the commissioner's actuaries that they could see that showed that specifically or -- so specifically -- that said these are the results from WSST and medium term for North Carolina?

A. Those might not be in that report. At the time I produced that report, I didn't -- didn't expect those are being expected by the Commissioner's actuary. But those results are available in our system, and I can add the documentations if you consider that's necessary.

Q. Our actuaries have already had to review what you gave us.

A. Um-hum.

Q. You would produce it now so that they could review it for the first time?

A. No. Those are -- I -- I'm just saying what I produce is documentation of some examples what I do. Since my review is countrywide, so when I do my sensitivity testing, I pick two data point -- one inland, one coastal.

And for that general report I produce, I happen to pick two Florida point, but I could have picked two North Carolina point. That will probably make it more specific to North Carolina.

But what I'm saying is my review include all coastal states, including North Carolina. And our Aon's model evaluation framework covers North Carolina.

Q. So I'm talking about AIR WSST and RMS medium term, not Aon's model.

A. Correct. Aon's model evaluation. I'm talking about Aon's model evaluation. And in my -- in my documentation, I showed -- in my ASOP documentation, I did show the impact of the warm sea surface temperature. If you go look into my report, you will see that result. And I -- I will double check if -- if how many state I show.

Q. And you mentioned that you ran or looked at the results from Florida for WSST and RMS medium term.

A. No. I look at --

Q. No, you didn't say -- you're saying --

A. I look at the result from all -- all coastal states, and I evaluated the impact of warm sea surface temperature or medium term, for the entire U.S. states, all U.S. coastal states. And as I recall, I did show by state impact, but I -- I need to verify that. It's been almost three years since I produced a report. I need to confirm what I produced back then. But what I'm saying is I reviewed all the coastal states, including North Carolina.

And in the big part of my report, I show the sensitivity testing for a lot of the variables that drive the hurricane losses. And for those relativity testing, I typically pick two cities -- one coastal city, one inland city.

And for that specific report, I believe I picked, one Orlando, one Miami Beach. I didn't pick the two points that in North Carolina. And that probably make you believe I didn't look at anything in North Carolina, but that's not true.

I look at North Carolina results as well. And in fact, in one of the page, there is a bar. The bar of the range include all the notional data point in all the city we tested, and the North Carolina is within that bar -- within those bars.

Q. From that, is that the only mention you recall of anything North, any North Carolina results from WSST and medium term?

A. I don't really get your question. What do you mean specific? Because I -- as I said, our testing include North Carolina result, North Carolina testing. Those -- those results are considered used by my ASOP compliance.

Q. So my question is, when the actuaries received your filing or any of the data responses and later discovery responses that the Bureau produced when we asked for stuff beyond your filing, anywhere in that universe, did -- were our actuaries able to see the WSST and medium results by a line item that said these are the results for North Carolina?

A. So we produce WSST, the entire event curve to your actuaries, and she will be able to see that. She got the entire model output for the -- for the -- for the filing.

Q. She would be able to -- either of -- any of our actuaries -- would be able from that curve to figure out what part of it was specifically the numbers that WSST and medium term produced for North Carolina?

A. Yes. Because we run that on the North Carolina exposure, and we produce result database and we provided those database to your actuary.

Q. Okay. Thank you. When you said -- oh, no. Actually, I've got that. So going back to ASOP 38 and so in my understanding for Aon, whether it's doing a CAR and net analysis, does it always use AIR medium term -- excuse me, AIR WSST and RMS medium term for CAR and net?

A. Yes. For any reinsurance place -- placement and for any residual market assessment analysis, all we always use the medium term view and -- and the warm sea surface temperature view.

Q. Okay. So for an individual carrier, for example, in South Carolina, you would still use AIR WSST --

A. Correct. For Florida, for anywhere in the country for -- for reinsurance and residual market assessment purpose.

Q. Do you know whether other actuaries, when they are calculating the net and the CAR always use medium term and WSST?

A. I -- other actuaries, I think, so far, I know your actuaries may not do that, but they are really a minority because, what I see, who I deal with the in the real client work, we use the medium term view and warm sea surface temperature view.

Q. When you say we, do you mean Aon?

A. Aon and, yes, and people working the insurance -- insurance industry and reinsurance industry. This is what I mean.

Q. So have you seen actuaries outside of North Carolina using AIR standard and RMS historical to calculate the net and the CAR?

A. I don't recall. I have seen that.

Q. Okay. Have you -- do you see other actuaries' calculations of the CAR and the net?

A. Not much CAR, I would say, but net cost of reinsurance, I see a lot. In -- in reality, Aon produce most of the output to -- to our client for their refilings for net cost of reinsurance.

Q. Yes. But I'm talking about other actuaries work on non-Aon clients. Do you see much of that?

A. Yeah. I -- I sometimes, I look for rate filings. I may see some of other actuaries' work product, but I don't remember I see the long term usage of those model.

Q. Okay. Now, you just mentioned you didn't see many people using -- maybe -- is it that you don't see many other actuaries doing a CAR calculation?

A. Because it's a unique provision in North Carolina.

Q. Okay. So in other states, there isn't any provision allowing, in your experience, for consideration of the Beach Plan data or Beach Plan assessments.

A. No. That's not true. I give you a couple examples. In Florida, all the assessment by Florida citizens is recoupable. And, in fact, it's a pass through, direct pass through to policyholders.

So there -- for them, there will be no need to have the CAR provision because as soon as they are assessed, they can pass the cost to the policyholders and, similar provision in Louisiana and in other state.

And there are some state, like a California FAIR Plan, for example. California FAIR Plan allows 50 percent recoupable through pass through for the first $2 billion industry assessment. And, yes, if you want do more example, I can give you additional examples.

Q. So you're making a distinction between there are some states that allow for 100 percent recoupment?

A. Correct.

Q. And then there are some states that allow for a 50 percent recoupment?

A. Correct.

Q. Okay. And North Carolina, at what point

does it allow for recoupment of the Beach Plan assessment?
A. That is North -- North Carolina's first $1 billion assessment is nonrecoupable. My understanding is any assessment beyond the $1 billion is fully recoupable through policyholder surcharge.
Q. Okay. So in California filings, have you seen actuaries calculate the CAR?
A. No. Because California, it's that regulation I was talking about just become effective just a couple months ago. And hasn't been a situation that triggered said regulation.
Q. So in other -- are there other states that you've seen where there's a state that has a law that says the Beach Plan or their equivalent of the Beach Plan assessments are partly recoupable?
A. Yeah. There are states that are saying, for example, Alabama, is saying the Beach Plan, FAIR Plan assessment could be reflected in the refiling. FAIR Plans, their AIUA, underwriting association's assessment can be reflected through refiling. And, similarly, in Texas, FAIR Plan has a similar provision to it.
Q. So in Texas and I believe you said South Carolina?

A. No. I -- I was saying AIUA, Alabama.
Q. Oh, Alabama. Excuse me.
A. Yeah. Alabama. Yeah.
Q. Okay. So for in Alabama and Texas, does their statue -- do those states, first of all, have both a Beach Plan and a FAIR Plan?
A. So, for Texas, has a TWIA, Texas Wind Underwriting Association, it's similar to your Beach Plan, and then Texas has a FAIR Plan as well. But for Alabama, there's only one residual market. It's called AIUA, Alabama Insurance Underwriting Association.
Q. So in Texas, is there a statutory provision that allows for consideration of nonrecoupable assessments by both Texas's FAIR Plan and by Texas's equivalent of the Beach Plan?
A. Okay. Yes. The equivalent, we call it TWIA. So for three years, they also have the $1 billion nonrecoupable assessment, and there is no statute allow them to build a CAR provision, not in Texas.
Q. Okay. So Texas doesn't allow for any consideration of CAR. Is that --
A. That's correct.
Q. Thank you.
A. For the one billion. But the FAIR Plan,

they allow through the rate filing. There is a difference between windpool association and the FAIR Plan.

Q. So Texas has a statutory provision that allows for CAR for its FAIR Plan?

A. It's -- yes. It's -- it's not called CAR. It's just a -- the way for a company to recoup the assessment.

Q. Okay. So it -- and that's specific to the Texas FAIR Plan?

A. That's specific to the FAIR Plan. But what we are talking about here, it's not a recoup of the assessment. It is compensation for assessment provision. That's a different concept.

Q. I understand that.

A. Okay.

Q. So, it sounds like -- is it fair to say that the -- notwithstanding whatever the California changes have been recently, but North Carolina's CAR provision is -- is it fair to say unique?

A. I would say, yes, it's unique.

Q. Okay. And who first designed in the history of, if you know, of Rate Bureau filings the method for calculating the CAR?

A. I believe that's a Milliman's methodology.

Q. Okay. So you think that came from Milliman?
A. I -- that's, yes. I believe so.
Q. Do you know if it came from -- I don't know if Dr. Appel is still in the room, but do you know if it came originally from Dr. Appel?
A. I -- that's my understanding. Dr. Appel is, yeah, a creator of that methodology.
Q. And you've continued to use Dr. Appel's methodology for calculating the CAR?
A. Yes. Because I -- this is what the decision made by the Rate Bureau to continue use the same methodology for this analysis.
Q. Okay. And I've forgotten what parts of the 2014 Court of Appeals order you read or didn't read. Do you recall reading anything there about the CAR?
A. I don't recall. I --
Q. Do you recall reading anything in the 2014 Commissioner's order about how he treated the CAR?
A. I don't recall.
Q. Okay. So I'm going to move on to sort of, as best I can, the -- what you know about the general customization of AIR -- all two AIR models and the two RMS models for North Carolina. And I'm talking about

the customization of -- let's start with the engineering module. What do you actually know about how they've customized their models for North Carolina?

A. What -- I think you are getting into the model development question again. But what I generally know is model vendors use year built as a proxy of the building code, and they also track in different part of the country what building code is being adopted, being enforced.

And in their calibration of the vulnerability functions, they actually reflect their -- these knowledge in their different regional vulnerability functions.

Q. Okay. So using the engineering function as an example, I believe you said there was, one, they look at specific states' building codes.

A. Um-hum.

Q. How do you know that?

A. I noticed, yeah, I sometimes, yes. I -- I do try to get a general understanding, yeah, what is a building code in different states. Are any states are have specifically strong building code versus weak building code and any state are behind adopting building code, things like that.

Q. So as to the Aon and RMS models that you

used, how do you know that they looked specifically at North Carolina building code?
A. Again, they are -- they just look at -- I think they keep track of what's -- what's being updated in -- in different region. And sometimes, even a building code is adopted, they may not reflect immediately in their model because they -- they feel if the state doesn't enforce certain building code, so then they may have some delays in reflecting those building code in the region.
Q. Okay. So is it only your impression that AIR and RMS have actually looked at the North Carolina building code?
A. I read ARR's report. They did mention, they noticed some specific county in North Carolina, their specific building codes there, they discussed. And I also checked ARR's, their building code adoption. They have a methodology for ICC. ICC means International Code Council.
Q. Um-hum.
A. And this is one of the building code North Carolina is adopting.
Q. Okay. So do you know if there are any -- is any such thing in North Carolina as a countywide building code?

A. That, I'm, I -- I noticed in the AIR's documentation, there are -- yeah. They call out some county, building code, specific building code. But I -- I'm not aware if every county has their own building code. I do know North Carolina statewide, they generally adopt a building code every certain years.

Q. Okay. And you stated that there is something -- was it only in the AIR that shows consideration of the international code?

A. The RMS model, they use, some the year built. I think year built function is a proxy of the building code.

Q. The international code?

A. So the -- it's not -- may not be an international code, but it's a -- it could be a combination of the IBHS code or international code. It's -- so when you talk about the code, it's every code is a combination of certain features.

Q. Um-hum.

A. So you can use the same model, and you just encode the exposure differently, then it become IBH gold bronze, or become the ICC code.

Q. Yep. I'm familiar with the adoption of the code in North Carolina. The -- that's in the RMS.

So you saw some proxy for the ICC in the RMS models?

A. I, in the past, when I do project, I did try to map RMS into different building code. And I work with RMS. I asked them to give me some combo. How can I do the IBHS? How can I do the ICC?

Yes. I -- I'm aware both of the models have capabilities to fully reflect those building codes.

Q. The International Code Council's code is what we mean when we say ICC. Is that right?

A. I think both. ICC is -- ICC just means certain values for certain building characteristics and based on years. And, yes, both models, they can reflect ICC building code.

Q. Okay. Have you seen that same thing? Any reflection of AIR taking into account the ICC code?

A. AIR taking -- yes. AIR had in their documentation, they have a table on every state where is the status of the ICC building code or other building code. Yeah. AIR definitely keep track of that.

But in term of is that consistent with the exact year when the state adopt it, it may not be because AIR, sometimes they believe if the building code is not enforced, then they will not immediately update their model.

Q. Okay. Do you know how much the North Carolina building code varies from the international code, the ICC?

A. That, I don't know. I think all those will be in the individual building characteristics, in the individual insurer exposure data we deal with. But I don't know how North Carolina vary from the ICC code. My understanding is in 2000 -- let me think, 2018, North Carolina adopted the 2015 ICC building code. And it is about and again, in 2023, North Carolina adopted the 2021 ICC building code, and that is not effective yet. The effective date is January 1, 2025.

Q. You're right. That's when they adopted the latest North Carolina code. Is it your understanding that the North -- that in 2018 and in 2023, North Carolina adopted the ICC code entirely?

A. I understand. I -- I -- my understanding is, in 2018 and the 2023, North Carolina adopted the -- the code, the -- the ICC code. However, I'm not sure how well those building code are enforced because when I look at IBHS, the building code score by state, I don't see significant change for North Carolina in the past six years. The score has been almost constant.

Q. Do you know whether the North Carolina code that was adopted, the residential codes, we're talking about residents here. Did you know there was a special -- there's a separate North Carolina residential code from, say, a commercial building?

A. I'm aware they are separate code for residential and commercial, but, here, I'm mainly talking about residential code.

Q. Okay. And do you know whether North Carolina, in fact, only adopts certain provisions from the ICC for its residential code?

A. That, I'm not fully aware because I -- I consider those are engineers' expertise. And I, for -- for my purpose, I want to -- I want to have general knowledge, but I'm not trained and educated to fully understand.

Q. Okay. So have you seen any indication in the AIR documentation you've seen or the RMS documentation you've seen whether they're aware how different the North Carolina residential building code has been from the ICC? Are there -- you see anything suggesting they're aware of that difference?

A. So I -- I -- I don't -- I -- I think you -- I -- my -- the documentation I see is --

HEARING OFFICER FUNDERBURK: I'm sorry to interrupt, Ms. Mao. We're going to take a brief recess. I need to address something technically.

We're off the record for 15 minutes. Thank you.
(Recess was taken from 2:32 p.m. to 2:48 p.m.)
HEARING OFFICER FUNDERBURK: Thank you. We're back on the record at 2:48.
Ms. Mao, I'll remind you, you're still under oath.
Mr. Friedman, my apologies for interrupting your, your train of thought. Please proceed with your examination.
BY MR. FRIEDMAN:
Q. So, Ms. Mao, do I understand your testimony to me to be that both RMS and AIR, you've only seen reference by them to incorporating the ICC?
A. Yes. I see reference, they incorporating ICC. That's correct.
Q. And you haven't seen any reference by them to them incorporating specifically the North Carolina building code?
A. In AIR documentation, actually, it's -- it's very specific for each state, which ICC here is adopted. They -- they do see -- see that. I do see that with AIR documentation. You also, I believe it's in the documentation I submitted to you.
Q. So it states that North Carolina Building Code Council has adopted the ICC.

A. Um-hum.

Q. Okay. Do you know whether that means that the North Carolina Building Code Council adopted all of the ICC or only certain provisions?

A. That, I don't know the details of that.

Q. And you don't know if AIR knows the details of that either?

A. I -- not from the documentation I see, but I don't assume AIR doesn't know it.

Q. Okay. And when North Carolina Building Code Council adopts and I'm going to put quotes around adopts. When it says it "adopts" the ICC, do you know whether it rewrites those provisions of the ICC in part, some of them, that it actually says it adopts?

A. That, I don't know. I believe you already asked me that question. I said I don't know.

Q. Okay. Out of your calculation of the hurricane losses, what percentage of that calculation is due to the engineering module?

A. That part is -- cannot be quantified, because the model output is frequency and the severity and engineering module. It's a composite result of all the module and also reinsurance module, financial module. You cannot really quantify what loss is caused by engineering module.

Q. Okay. So hypothetical, if the engineering model were causing 33 percent of the model loss, and then -- well, then it would be -- okay. If it were causing 33 percent of the modeled loss and you don't know whether that engineering module is actually based on North Carolina's building code --

A. It's not a valid assumption. As I said, engineering module itself doesn't create modeled loss. If you have no hazard, only engineering, there will be zero loss. It's always the interaction of hazard engineering and the financial model to generate the results.

Q. Exactly. I'm only asking about the hypothetical 33 percent that would have been due to the engineering module.

A. Hypothetical 33 percent of what?

Q. Of the ultimate modeled hurricane losses.

A. As I said, it cannot be quantified that way because without hazard, you cannot just talking about engineering module alone. Because if there is no hazards, there will be no damage. No wind, no damage. Right?

Q. Understand that. Would you agree that, at least as to the engineering module and whatever intermingled portion of the loss -- the model hurricane loss costs it contributes to. Would you agree that that would not be actuarially sound if you didn't know if it took into account North Carolina's building code?

A. If they -- would I agree? If they completely ignore North Carolina building code, then, yeah, I see a problem. However, that's not a choose because both vendors, they use different, either building code or year built to reflect North Carolina building code.

And I also want to point out, you just mentioned 2018. And 2018 adoption of the building code was not effective until 2019. And when you talk about -- and those building code only apply to new constructions. It's -- it's not a retrofit to the old buildings. So it only impact a very small portion of your statewide exposure.

Q. Okay. You're absolutely right. The Building Code Council did adopt the -- had a 2018 adoption and that took effect in 2019. And, yes, the building code -- I don't want to be testifying. So let me ask you this.

Do you know anything about the existing building code in the North Carolina building code?

A. What is the existing? I -- not -- not in detail. No.

Q. Okay. Do you know about the concept or do you know what an existing building code is?

A. No.

Q. Do you know that building codes do have a provision that applies to residences that deals with if that residence is damaged, let's just say if its electrical systems are damaged, whether it has to be brought up to the current electrical standards or the ones that were in effect when the house was built?

A. Yes. I am aware of those law and ordinance requirement, and a similar provision existed in Florida. Yes, I am aware. Yeah. If the building is damaged to a certain percentage, say, 50 percent, the building need to be rebuilt, to -- to the new building code. I am aware of that.

Q. Okay.

A. Yes.

Q. So you said just now that the building code was only applicable to new homes, so that wouldn't have, I -- I guess, affected your analysis.

A. I'm -- it's a building code is, so, yeah, so, yeah, I can correct myself. The new building code applied to the new constructions as well as those buildings that damage beyond certain threshold has to be rebuilt to the new building code, but it doesn't

require every existing building to be retrofit into the new building code.
Q. Right. So how about specific systems within houses? Do you know whether in North Carolina, if you remodel your bathroom --
A. Um-hum.
Q. -- you have to bring it up to current code or the code that was in existence at the time your bathroom was originally constructed?
A. That, I don't know. I think I pay attention most, mostly when it has insurance and the reinsurance impact. I don't have -- I didn't study. So is that specifics related to renovation? No. I don't know.
Q. Okay. Then as to damage, let's just say only let's say the bathroom and the kitchen are damaged, and that's what the insurance companies end up paying under their homeowners' policies.
A. Um-hum.
Q. Do you know whether that bathroom has to be brought up in any way to the current plumbing code?
A. Are you talking about any bathroom, or you're talking about the only when the total damage is beyond a certain threshold?
Q. Even if the total damage is not beyond the

threshold. If there is a -- let's -- if there is a storm and it affects the electrical wiring of a house, do you know whether or not the -- what's called the North Carolina Existing Building Code requires that that electrical system, when it's being rebuilt, be brought up to the current electrical code standards?

A. I don't know the specific of this item, but I also believe this type of knowledge reside in the engineering community. And it's not my responsibility to know every aspect of the engineering details.

Q. I understand that. Would you agree that with regard to homeowners' insurance, whether or not if there's a hurricane and it takes out somebody's electrical wiring, in North Carolina, would you agree that whatever the building code says about how that electrical wiring has to be reconstructed is relevant to what homeowners' carriers have to pay out?

A. I'm not aware, but you actually brought to my attention important issues that is modeling vendor may not -- if they didn't reflect all the details you just discussed, that might be -- they may underestimate hurricane loss for North Carolina.

Because the things you discuss are -- will significantly increase insured loss for -- for those policies. And I think, yeah, that's a very valuable information for vendors to consider, I think.

Q. So whatever effect the North Carolina Existing Building Code would have on AIR and RMS's calculations, engineering -- in the engineering module, would you agree that the Department's actuaries can't tell because they don't even know if the RMS and AIR models take into account North Carolina's building code?

A. I believe we submitted the documentation, help them to understand whether or not both models considers a building code.

Q. You've stated that you don't know whether AIR and RMS actually consider the North Carolina building code as opposed to the ICC. Is that correct?

A. So you are asking a very specific engineering question that I don't --

Q. I'm asking whether you have personal knowledge since you ran the model.

A. Since I run the model, I know modeling vendor have the engineering expert to track the building code to reflect the building code in the model. And to that extent, how much is that each county specific, or does that include the bathroom, the wiring in the bathroom? That, to that detail, I don't know because, yeah, that part, we don't -- modeling vendor don't have the documentation for that.

Q. Okay. So you assume that AIR and RMS have even looked at the North Carolina building code because they -- they employ a bunch of good engineers?

A. I -- I need to have a certain trust to other experts. So that is, yeah, I cannot, as an actuary, I cannot do everything myself, and I need to rely on expert, beyond my own self, my area of expertise.

Q. So I'm sorry, ma'am, but once again, I'm very unclear by your answers sometimes. The only reason you have --

HEARING OFFICER FUNDERBURK: Mr. Friedman, Mr. Friedman, you don't need to make commentary.

MR. FRIEDMAN: I'm sorry. I -- I'm sorry. That was unnecessary.

BY MR. FRIEDMAN:

Q. The only reason you haven't seen anything in the AIR or RMS documentation referring specifically to the North Carolina building code, but you only see it referring to the ICC. Is that correct?

A. That's correct. I -- I see the ICC and but I don't assume they don't have the North Carolina building code.

Q. Okay. But you only assume they've looked at it because they have -- you have to have trust in RMS and AIR.

A. I -- I -- I believe they look at that because I was part of the Florida Commission. I reviewed how they reflect Florida building code, and I believe the under the same engineering discipline, they will review other area. That is my assumptions.

Q. Okay. Were you part of the Florida Commission for both the review of -- well, review of both RMS models that you used here?

A. No. Because these models were released in 2021 at the time I work at Aon.

Q. Okay. Were you familiar with the pre-2021 RMS models, the medium term and the historical that you used here, were you there when those were approved?

A. I reviewed the two cycles of models that were released in 2015 and 2017.

Q. Okay. And did those include the RMS medium term and the RMS historical?

A. Florida Commission only reviews long term views.

Q. Oh, so the Florida Commission doesn't even approve WSST or medium term?

A. Florida Commission approved model to use for the rate making. And they don't restrict the model on what model to be used for reinsurance purpose.

Q. I'm not talking about reinsurance purposes. I'm talking about hurricane purposes.

A. Yes.

Q. Do they approve -- have they ever approved of either the WSST or the medium term?

A. As I already answered your question earlier, I said, Florida Commission only review and approves the long term model, and that is why long term models are used for rate filings.

Q. Okay. And you -- are you saying that they do approve the medium term and WSST for reinsurance purposes?

A. No. I don't say they approve medium term bill. They don't have any regulation on what model to be used for reinsurance purposes.

Q. Okay. Thank you. I'm going to move on to new topic, ma'am.

A. Sure.

Q. I'm going to talk about how your results, if at all, have been affected by Dr. Zanjani's analysis. And in turn, if you know about whether your analysis has affected Dr. Zanjani's analysis. So I'll start with the first question.

Is your analysis at all affected by Dr. Zanjani's profit calculation?

A. No.

Q. Okay. Does your analysis affect Dr. Zanjani's profit calculation in any way?

A. I don't know. I'm not hired to do that work. My job is to provide hurricane model loss and the reinsurance and the CAR analysis.

Q. Okay. Do you know what return on equity is?

A. I know it's -- stand for, yeah. ROE. I know.

Q. Um-hum. And how do you calculate the return on equity?

A. What is -- that's not -- not my job for NCRB.

Q. I know, but I'm asking you. According to the actuarial standards, do you calculate -- I'll ask this. Do you calculate the return on equity by dividing a company's net income by its shareholders' equity?

A. I don't calculate that way. No. It's -- so it's -- I don't do the ROE calculation for -- for this filing. And generally, I don't do ROE calculation.

Q. Okay. So you don't know how actuaries calculate the ROE?

A. It doesn't mean I don't know. I just tell you that's not my job responsibility. That's -- it's been done by other experts.

Q. Do you know if actuaries calculate the return on equity in part by considering the net income of the shareholders' equity?

A. I -- I think I already told you. I -- there are nine different ways to calculate return on capital and with specific context. And that's not my major responsibility. It's irrelevant to this refiling.

Q. Does one of those nine ways include some consideration of the shareholders' equity?

A. So I believe so. Yeah. One way would be.

Q. Okay.

A. Yeah.

Q. And when you're referring to return on equity, you just said cost of capital. Do you understand those to be the same thing?

A. As Dr. Zanjani already discussed, they are -- one is accounting term, one is the investment terminology, and sometimes they are interchangeably used.

Q. Okay. Dr. Zanjani also -- did you hear him testify or have you reviewed his testimony that when he uses the term cost of capital, he's using it not in the actuarial sense, but as an economist?

A. If he testified, but I don't -- yeah. I'm aware you asked those questions, but my responsibility in this filing has nothing to do with cost of capital.

Q. I understand that. I'm asking about your awareness of how actuaries generally calculate the cost of capital.

A. Yes. I see that in rate filings.

Q. Okay.

A. Yeah.

Q. And do actuaries treat the term return on equity as roughly synonymous to cost of capital?

A. I see filings. Sometimes it does interchangeably used.

Q. All right, thank you. And when they are considering actuaries, not economists, considering -- or not economists who have an actuarial certification too, but for testifying as economists -- the -- do actuaries in computing the cost of capital take into effect -- take into account the expected return that the market demands on the capital and surplus investments?

A. I don't -- I don't know what you're getting into because that's not my job for this --

Q. You don't know how actuaries calculate the cost of capital?

A. I don't know what you are trying to accomplish by asking these irrelevant questions.

Q. Do you know how actuaries who do calculate cost of capital typically calculate it?

A. I see refilings. I -- I know how they are calculated.

Q. Okay. And when they calculate cost of capital, do they not take into account what the market expects of the return on investment of capital and surplus?

A. So are you, again, you are talking about those accounting firm -- accounting terms and investment terms, and we already have hours of discussions on that topic, I believe, in prior days. I don't know what, this in --

Q. I'm not talking about the accounting terms. The meaning of, like, of cost of capital to accountants. I'm talking about the meaning of it to actuaries whom you've seen calculate cost of capital.

A. So -- so then can you repeat your question?

Q. Yes, ma'am. Do they not calculate cost of capital based on what the market demands from, in part, investments of capital and surplus?

A. As I recall, the cost of capital does reflect reasonable expectation for the return.

Q. On the investment of capital and surplus?

A. So I -- I think I have to think about the -- these questions because these -- these are not my typical job responsibilities.

Q. Have you ever seen an actuary in his calculation of the cost of capital address what unrealized capital gains the market expects?

MR. SPIVEY: Did -- did you say unrealized capital gains?

MR. FRIEDMAN: Unrealized. Yes.

MR. SPIVEY: You've -- you've changed topics here.

MR. FRIEDMAN: No. I'm still -- I'm asking about a component of the calculation of what the -- a component of what the calculation of what the cost of capital includes is not only the actual investment's returns, but also the not the only the realized investment returns. In fact, those are technically no longer even capital and surplus.

But what I'm asking is the unrealized

returns on capital and surplus, such as the expectation that -- by the market -- that they're going to earn dividends for however long they own the stock. Or, for example, the expectation by the market that, ultimately, when they sell the stock, they're going to get more than they originally paid for it? Are those not reflected in --

HEARING OFFICER FUNDERBURK: Mr. Friedman?

MR. FRIEDMAN: Yes, ma'am.

HEARING OFFICER FUNDERBURK: Proceed with your questioning. And I'll ask him to restate so it's clear exactly what the question is that you're being asked to respond to, Ms. Mao.

BY MR. FRIEDMAN:

Q. Do you know what unrealized capital gains are?

A. I under -- I know what is what it is.

Q. And are -- do unrealized capital gains include what an investor expects to receive in dividends for as long as he holds the stock?

A. Again, I -- I just want to tell you, that's not my typical actuarial work. So I don't want to have a comment on those specific things that I'm -- that's not related to my job.

Q. Ma'am, can I --

HEARING OFFICER FUNDERBURK: And I'll clarify. To the extent that you don't know an answer, you can say you don't know. As to whether or not a question might be relevant, that'll be up to Mr. Spivey to object to, and then I'll make a ruling on it.

I'm not sure what foundation Mr. Friedman is laying, but I presume he's laying a foundation for something.

THE WITNESS: Okay.

HEARING OFFICER FUNDERBURK: So I'll ask until there's an objection regarding relevance that to the extent that you're that you're able and have knowledge --

THE WITNESS: Okay.

HEARING OFFICER FUNDERBURK: -- that you do answer the question. Thank you, ma'am.

BY MR. FRIEDMAN:

Q. I'll clarify my questions. I'll break them up as much as I can into two different ones.

When you've seen other actuaries who have computed or calculated the cost of capital, have you seen that, in their calculations, is what the shareholders expect in terms of dividends?

A. I don't remember.

Q. Okay. Have you seen any mention of what the shareholders expect in terms of, ultimately, what they will get for their shares when they sell them?

A. I don't remember.

Q. Okay. So you don't know, in fact, whether actuaries calculate their cost of return of capital in part based on those?

A. I see actuaries calculate their return, but I don't remember those specific details because those are not my main practice area. I usually just simply take the output final result of -- of those calculation.

Q. Okay. Thank you. All right. So I'm going to move on, ma'am, to the question of demand surge at --

HEARING OFFICER FUNDERBURK: Are we changing topics at this point?

MR. FRIEDMAN: It's still very much within her actual loss calculations. But, yes, I am changing questions from talking about the cost of capital to our demand surge calculations.

HEARING OFFICER FUNDERBURK: I know it's a little earlier than we had planned to recess. Would this be, as -- as goes to your line of questioning, would this be a good point for a recess?

MR. FRIEDMAN: It absolutely would be fine.

HEARING OFFICER FUNDERBURK: Any concerns, Mr. Spivey? Okay. I appreciate your flexibility. I'm going to recess us today at 3:15.

MR. FRIEDMAN: Could I address -- I think we discussed this one thing on the record, and it is that since we're going till noon tomorrow, and I don't know what redirect they may have, Mr. Spivey had been talking about whether Mr. Ericksen, who was going to be scheduled for Friday, should really be anticipated to testify. And I have no problem with Mr. Erickson testifying when we reconvene on the 23rd.

HEARING OFFICER FUNDERBURK: 23rd.

MR. SPIVEY: We have no problem.

HEARING OFFICER FUNDERBURK: You have no objections to that? Then we'll plan for that. We'll resume at 9:00 a.m. sharp tomorrow with a plan to recess at approximately noon. As we saw yesterday, we went a little over.

Today, we're recessing a little early. I'm fine with that adjustment to the schedule. We will bring him in on the 23rd. Thank you, counsel. We are in recess.

* * * * *

(Hearing adjourned at 3:19 p.m.)

CERTIFICATE OF REPORTER

STATE OF NORTH CAROLINA
COUNTY OF WAKE

I, Wendy Sawyer, court reporter, do hereby certify that the witnesses whose testimony appears in the foregoing hearing were duly sworn; that the testimony of said witnesses was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this hearing was taken, and further that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

This, the 10th day of October, 2024.

WENDY SAWYER, Court Reporter
Notary Public #202411500157
Commission Expires April 23, 2029