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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS)

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REGULATORY POLICIES AND PRACTICES SUBCOMMITTEE

+ + + + +

TUESDAY

AUGUST 19, 2014

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B1, 11545 Rockville Pike, at 1:00 p.m., Harold B. Ray, Chairman, presiding.

COMMITTEE MEMBERS:

HAROLD B. RAY, Subcommittee Chairman

SANJOY BANERJEE, Member

DENNIS C. BLEY, Member

CHARLES H. BROWN, JR. Member

JOY REMPE, Member

STEPHEN P. SCHULTZ, Member

GORDON R. SKILLMAN, Member

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JOHN W. STETKAR, Member

ACRS CONSULTANT:

WILLIAM SHACK

DESIGNATED FEDERAL OFFICIAL:

MICHAEL SNODDERLY

ALSO PRESENT:

ALYSIA BONE, NRR

ABY MOHSENI, NRR

FRED SCHOFER, NRR

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P R O C E E D I N G S

1:01 p.m.

CHAIRMAN RAY: The meeting will now come to order. This is a meeting of the Regulatory Policies and Practices Subcommittee. I'm Harold Ray, Chairman of the Subcommittee meeting.

ACRS Members in attendance are Sanjoy Banerjee, Steve Schultz, Gordon Skillman, Dennis Bley, Chairman John Stetkar, Ronald Ballinger will join us after he gets off of a conference call, Charles Brown and Joy Rempe.

We do have also our Consultant, Panel Member and Chairman Bill Shack here with us today to assist us and Mike Corradini told me by email that he's thought he would arrive in time for the meeting.

So, we'll see about that.

Mike Snodderly is the Designated Federal Official for this meeting.

In this meeting, the Subcommittee will receive a briefing concerning a draft SECY which provides the Commission with the staff's recommendation for qualitatively considering factors in regulatory and backfit analyses. A response to a direction in an SRM dated March 13th, 2013.

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Although the SRM also dealt with the requirements of certain BWR containment venting systems, the staff's recommendations for qualitatively considering factors in regulatory and backfit analyses was directed to be generic and independent of containment venting.

We've received no written comments or requests for time to make oral statements by members of the public regarding today's meeting.

The meeting will be closed in order to discuss and protect information a premature disclosure of which would be likely to significantly frustrate implementation of proposed agency action and is pursuant to 5 USC 582(B)(c)(9)(b).

Attendance at this meeting will be limited to NRC staff and its consultants. Consequently, we will need to confirm that we have only eligible observers and participants in the room and when we close the doors, we have.

The Subcommittee will gather information, analyze relevant issues and facts and formulate proposed positions and actions as appropriate for deliberation by the full committee we expect in September.

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A transcript of the meeting is being kept and will not be publicly available.

We request that participants in this meeting use the microphones located throughout the meeting room when addressing the Subcommittee. The participants should first identify themselves and speak with sufficient clarity and volume so that they may be readily heard.

We will now proceed with the meeting. I call upon Aby Mohseni the Deputy Director, Division of Policy and Rulemaking, Office of Nuclear Reactor Regulation to begin.

MR. MOHSENI: Thank you, Dr. Ray. Good afternoon, everyone.

I'm Aby Mohseni, the Deputy Director for the Division of Policy and Rulemaking in the NRR. Thank you for the opportunity to brief you today on the notation vote SECY paper Qualitative Considerations of Factors in the Development of Regulatory and Backfit Analysis.

In a few moments, Alysia Bone to my left, the Project Manager, will provide you a presentation on this paper and together with Fred Schofer on my right, discuss the status and background, but just

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some initial points I'd like to make.

The staff submitted this paper to SECY last Friday, August 15th. Given the fact that the paper was not yet publicly available, this ACRS Subcommittee meeting is closed.

This meeting was in response to the staff requirement memorandum on filtering strategies SRM-SECY-12-0157 which said independent of the BWR Mark I and Mark II containment filtration issue, the staff should seek detailed Commission guidance regarding the use of qualitative factors in a future notation voting paper.

So, this paper came from the direction -- though this paper came from the direction of filtering strategies, it fell under the auspices of the Agency-wide Cost-Benefit Working Group and many of those working group members are here in the audience today.

This paper and our implementation of the Commission direction on this topic are part of the NRC's overall plan for updating cost-benefit guidance.

I'll note that on June 11th, the staff provided a full committee ACRS briefing on this plan to update cost-benefit guidance. Which is found in SECY-14-0002.

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Thank you again for the opportunity to brief you on this notation vote SECY paper. There is a full-committee briefing on this topic scheduled for September 4th and we look forward to hearing your views today and in your letter on the subject. Thank you.

MS. BONE: Thank you, Aby. I am Alysia Bone and I am in the Rulemaking Branch in the Office of NRR and thank you for the opportunity today to brief you on SECY paper Qualitative Consideration of Factors in the Development of Regulatory Analyses and Backfit Analyses.

So, the purpose of today's briefing is to go over that notation vote SECY paper and all of its enclosures. So, the outline for today's presentation will be -- we'll begin with an overview and a status and then simply walk through the package itself. Concluding with the staff's proposal.

So, a bit on overview and status, some of it is repeat from Aby's opening remarks, but just as a reminder, the staff did submit the SECY paper last week Qualitative Consideration of Factors in the Developments of Regulatory Analyses and Backfit Analyses and I understand prior to that you received a

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draft copy of this paper and its enclosures. It changed very little from when it was submitted to the Commission. Just a few word noodles here and there, but substantively, it did not change.

This is a notation vote SECY paper with four enclosures and it's seeking Commission approval of a staff's proposal on how to better implement our practices with regard to qualitatively considering factors and as Aby mentioned, there is an ACRS full-committee briefing on this in September and we look forward to hearing your views on this in a subsequent letter.

The background and a bit of context for this paper. The filtering strategies SRM-SECY-12-0157 directed the staff completely independent from the filtering strategies issue to seek detailed Commission guidance regarding the use of qualitative factors which we interpreted in regulatory analyses and backfit analyses in a future notation voting paper and as a brief reminder of that sort of context behind that, the quantitative analysis for the regulatory analyses for the filtering strategies SECY paper did not justify the staff's proposal for -- within the regulatory analyses for that paper. However,

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qualitative -- additional qualitative arguments did justify that argument.

So, we received the base notation, the direction to provide this notation voting SECY paper and given the context behind that original SECY paper, the scope of this paper that we've provided includes regulatory analysis and backfit analysis for all NRC regulated activity.

And the reason I'm putting this out here is because as we heard earlier, this did fall under the work of the Cost-Benefit Working Group which is made up of representation from seven offices including the cost-benefit analyses that are conducted under NEPA, SAMA and SAMDA, but those are outside of the scope of this particular paper.

So, a few words on context. This is part of the plan for updating the overall agency's cost-benefit guidance found in SECY-14-0002. Which was submitted to the Commission in January of this year.

This topic is linked to a few other activities and as Aby mentioned, early this year in June, we provided an overview of this plan itself and this qualitative consideration of factor SECY paper was one piece of this overall puzzle. Other pieces

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included SECY-13-0132, the Near-Term Task Force Recommendation 1 as well as mismanagement regulatory framework initiative.

The tie between those two are with regards to the defense-in-depth discussion that's a key component of both of those activities. We'll talk more about that in future slides, but essentially, the point here is defense-in-depth is one of those factors that has been considered qualitatively and has been a key attribute within past regulatory analysis. So, that's really the link here.

We did hold a public meeting on this topic specifically qualitative consideration factors in May of this year. We, of course, were still in the process of developing that paper at that point, but we had already done a lot of the background information and so, we were able to communicate sort of the framework and how we consider the factors qualitatively to members of the public.

And just a quick summary of that, we essentially got a lot of positive feedback from members of the public. Overall as you might have seen in our draft SECY paper, we are hoping to move towards enhancing our guidance on this topic and that really

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was received positively among members of the public. They understood why we consider factors qualitatively and think that updating guidance is a good next step to improve business practice.

So, in the next couple of slides, I'll talk about how and why and where we consider factors qualitatively within our framework.

So, just to start off from the very basics from the early definition, you know, I think it's important to note that in our regulatory analyses and backfit analyses obviously we, the staff, consider factors both quantitatively and qualitatively and there are a number of reasons that the staff may choose to consider factors qualitatively.

There's a practice of particular attribute. There's no commonly accepted quantitative measure or there's simply a lack of quantitative methodology for considering a specific factor. It just doesn't lend itself to a quantitative discussion or there's just lack of quantitative data and any sort of assumptions that you would make regarding the quantitative analysis would be so high in uncertainty or it would just made more sense to discuss this item qualitatively.

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In our guidance and in our practice, we do know that it is preferred to quantify where possible.

But, nonetheless, factors, attributes that are very important to the analysis that are not -- that do not lend themselves to a quantitative analysis are discussed qualitatively.

So, there's not -- I mean this is all to say there's not a "definition" for qualitative factors. It can range in --

MEMBER STETKAR: Alysia, let --

MS. BONE: Yes.

MEMBER STETKAR: -- me ask something. I'm going to bring this up probably two or three times --

MS. BONE: Okay.

MEMBER STETKAR: -- this afternoon, but this is a good place to mention it first.

You characterized things with words like no lack.

MS. BONE: Yes.

MEMBER STETKAR: And your statements imply that there's nothing available. The guidance actually says not enough data or no accepted models.

I'm curious about how the staff determines there's not enough data or there's no accepted models

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to justify use of qualitative factors. Because in many cases, there might not be very much data which implies there might be relatively high uncertainty, but we could quantify that. We know how to do that. Maybe the staff doesn't know how to do that, but people know how to do that.

So, my question is is this use of qualitative factors simply a surrogate for laziness on the part of the staff in terms of quantifying uncertainties that can, in fact, be quantified and displayed to the decision maker.

And I always use the example if somebody in 2006 had told me that there was a 3 percent of my losing 40 percent of my net worth, my decision might have been different given that information. Rather than simply advisors says well, it looks that those will probably be okay.

So, I'd like to challenge you in terms of the use of qualitative factors as a surrogate for being more comprehensive and quantitative about evaluating uncertainties that can be evaluated.

Now, I'll agree when you get into some of the examples if you get there, there may be issues that do not lend themselves very well to a

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quantitative evaluation, but certainly there seem to be issues that do.

MS. BONE: Thank you. I appreciate the question. I agree. I think ultimately -- again, I think our thesis for the whole paper is that we do want to push towards better practice where we can consider things qualitatively, be more transparent about that, but I think another point that we try to make in the paper is that as we update guidance, we do want to push towards more quantification as well. So, increased practice.

MEMBER STETKAR: It's mentioned in there, but --

MS. BONE: Yes.

MEMBER STETKAR: -- not very strongly.

MS. BONE: I think to your earlier question and I'll turn it over to Fred in just a second, but I think there is no -- within the guidance, there is not a hard, fast rule as to when one considers things qualitatively and when you choose to quantify or when -- vice versa I should say. When you quantify rather than determine there's not enough data and then qualitatively discuss it. I think it's up to the analyst for, you know, engineering judgment,

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et cetera.

Fred, do you have any more to add to that?

MR. SCHOFER: I do. Oh, first, I will say that I think the surrogate for laziness is unusually harsh.

CHAIRMAN RAY: And meant to be so.

MR. SCHOFER: Well, let me go beyond that. I think the real difference reflects a degree of uncertainty surrounding, you know, the variable or the attributes being considered.

Certainly if the distribution values attributable to the variable or the attribute is sufficiently uncertain, you know, probably that variable should be, you know, considered intrinsic and handled qualitatively.

That is not to say that there may be opportunities where if you had, you know, resources, research to do more in that area to further quantify that that would be beneficial, but we don't always have that available to us.

So, in many cases, we look at the data that is available. Whether it's sufficient to fundamentally establish best estimates and do sensitivities around it or, you know, whether the

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model is robust enough that, you know, it is predictive to forecast, you know, a consequence. Whether it be beneficial or not and most are things that have to be decided. I mean we try to do as much as we can with what we got.

CHAIRMAN RAY: But, see all of those, Fred, focus on the presumption that you want a precise pass/fail single member that you compare against a precise black and white criteria and I'm advocating something that says the world doesn't work that way. That decision makers in areas where there is large uncertainty ought to be afforded the opportunity to examine that uncertainty and understand that uncertainty without an arbitrary notion that says well, I did some set of arbitrary you can call them sensitivity studies. But, they're all arbitrary.

There is not a probability associated with those sensitivity studies. Sometimes words like bounding are used, but we have examples where that word doesn't mean what most people think it might mean.

And this notion that the decision maker should be presented with a very precise single value that is compared with a very precise acceptance

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criterion really isn't decision making. It's somewhat arbitrary.

MR. SCHOFER: Well --

CHAIRMAN RAY: And in trying to emphasize the fact that the numbers that you're quantifying must be precise and if we can't quantify them precisely, we then can only rely on qualitative decision making input.

It seems to really not pay appropriate attention to our ability to quantify, display and present the uncertainties.

MR. SCHOFER: I don't believe it's an either or when we say, you know, quantify or not. I think that it's important that when you do quantify or do it qualitatively that you're very -- have a robust discussion about the uncertainties involved around whatever it is, you know, that you're trying to monetize or quantify or whatever it is.

So, I don't think we necessarily disagree with the concept. You know, if the data is there and we can talk about, you know, our -- the level of knowledge or the lack of knowledge around that and we can quantify it and we can put it into the appropriate framework in terms of how to consider these results,

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we would certainly want to do that.

And, in fact, you know, as we get further in and we talk about how we're further enhancing, I mean we're looking at doing a lot more with regard to Monte Carlo and bootstrapping and, you know, doing things like that to further quantify the uncertainties around our forecast and predictions.

CONSULTANT SHACK: Let me just pile in there again on that point, John.

Take a specific example. When you did the filtering strategies, you had the break-even analysis and you were getting the thing. You presented the thing. Okay. If I have 2 times 10 to the minus 5, it wouldn't pay. If it was 3 times 10 to the minus 4, it would. You gave a net probability distribution as to which number was more likely.

Then at the end of the paragraph after discussing this, you surely did -- well, this is one uncertain parameter, but then the cost is -- you know, the consequences extremely uncertain. But, I'm not going to give you any distribution on that. I'm just going to tell you it could be an order of magnitude greater than it was.

Well, I would argue that, one, you should

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know how to tell him what the probability -- distribution of those probabilities of failure are and it's -- you know, you should have given him that information.

But, there seems to be a reluctance to deal with more than one variable at a time. So, I do a sensitivity analysis. You know, I should really do a sensitivity analysis in that case on the likelihood and on the consequences. You know, one of the things I'd like to see is to go off -- maybe it is hard at the moment to quantify the cost. The uncertainties and the cost. But, it seems to me that's a prime thing to be looking at this kind of analysis.

The other one that comes to you. You had the problem with the spent fuel pool. You know, you did your bounding analysis and your upper bound came out with this colossal number. It said, you know --

MEMBER STETKAR: Well, as --

CONSULTANT SHACK: -- and then you say okay, well, let's ignore that because it's to unlikely. Well, you know, you could have given me distributions for these things. I would have had these things. I could have -- I would have seen just how all this worked out, but again, there's this

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emphasis on getting point estimates rather than dealing and I can understand, you know, the -- you have to defend the distribution when you get it.

One of the proposals here is the sort of decision analysis. You're going to come up with these weighting factors. Well, I -- you know, give me the answer I want and I'll give you the weighting factors I need to get it.

MEMBER STETKAR: But, I mean part of the decision process is to defending. You know, this is my own certainty distribution and that's why I believe this.

If you have a different view or anybody else in this room has a reason to believe that the uncertainty distribution should be different, fine. Let's discuss your reasons.

CONSULTANT SHACK: If you break it down, that's --

MEMBER STETKAR: That's the range and the shape of that distribution.

CONSULTANT SHACK: You bring in different pieces of experts. I mean you have a guy who knows severe accidents. He gives you one distribution. You have an economist that knows the other. Nobody has a

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real feel for the combined result and, you know, you can't ask for an expert elucidation on that.

MEMBER STETKAR: No.

CONSULTANT SHACK: The pieces --

MEMBER STETKAR: You had tools though that can combine though. I mean there are tools that can combine those

CONSULTANT SHACK: Combine. Right. But, as I say, what bothers me is this reluctance to do more than one variable at a time. You know, you do sensitivity analysis, but you just don't do uncertainty. I haven't seen one really in a regulatory analysis because you always do the break-even analysis. You do the, okay, I'm going to take a point estimate and I'm going to call it a best estimate. I take a point estimate and I'm going to call it a 95th or an upper. You know, I got three point estimates. Exactly how they got them --

MEMBER STETKAR: Words like bounding are used inappropriately also because many of the analyses indeed are not. Bounding presented to a decision maker generally means it cannot be any worse or it cannot be any better. Time out.

And in many cases, the parameter values

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that are used in those so-called bounding calculations even based on available data are not actually bounding. They're at an -- they're somewhere out in the tails of the distribution, but indeed there are parts of the distribution that extend either above or below them depending on how you kind of characterize the analysis.

So, even in the sense of presenting information, this is on bounding analysis. Now, without -- it's a bounding analysis, but we think that there is two percent probability that it's worse. So, therefore, it's not a bounding analysis.

CONSULTANT SHACK: Well, no.

MEMBER STETKAR: And that's --

CONSULTANT SHACK: We combine with five factors none of which are bounding, but we think the answer is bounding.

MEMBER STETKAR: That could be as long as you --

CONSULTANT SHACK: Yes.

MEMBER STETKAR: -- propagate just distributions.

CONSULTANT SHACK: But, again, I like to see distributions and come to that conclusion.

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MEMBER STETKAR: And in fairness to the decision maker, I mean it's not easy to make decisions and you shouldn't necessarily make the world easier than it is. Anyway, that was --

CONSULTANT SHACK: And we --

MEMBER STETKAR: -- this was the appropriate time for me to raise this because it says -- even these statements say lack of quantitative, no commonly accepted. Those are absolute statements and in almost no case, do any of those apply.

There are accepted -- there are quantitative measures. There is some data. Even the lack of information people will say is information.

MEMBER SCHULTZ: Alysia, I wanted to bring up one -- I think it's a complimentary comment related to where John started and that's just again looking at the first paragraph that you displayed here and it's a very clear statement, but if I take that as it is presented and read it through, this is where the staff considers -- qualitatively considers factors. No commonly accepted. Lack of quantitative. Lack of quantitative.

In fact, I think we're doing something much different here going forward in the staff's

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presentation and recommendations and so forth.

So, if this is just a representation of what has been done in the past, it differs. I'll just make this point. It differs from the discussion that was provided in SECY-12-0157 greatly. Because this is saying only in these cases were qualitative factors considered. That's not where we went with the discussion associated with 0157.

So, my point is that as we go forward here, I would stress that we really need to be careful about how we frame the issue and how we define it and how we communicate it. Because we've just gone through a lengthy discussion of how we will quantify qualitative factors and, you know, this is where we want to go generally. Just, you know, engineer scientists. We want to quantify the qualitative and that's, in fact, I think the -- I think, in fact, the challenge is broader than that and yet, that seems to be where we wind up.

MR. SCHOFER: If I can just say, this is really a focus on the attributes, the factors, the variables that are difficult to quantify.

MEMBER SCHULTZ: Yes.

MR. SCHOFER: We will also agree that we

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can do a better job quantifying and I think that was to the prior point. So, we're working on that side as well, but this presentation is really on those things which, you know, are much harder to classify.

MEMBER SCHULTZ: That's why I'm saying we really need to stick to it. Because once we get off and mixing and matching or trying to combine it all together without defining separating what we're -- what we are describing and discussing, it gets very complicated quickly and people come at it from different backgrounds and perspectives and I don't think we'll get to where we want to be if we keep mixing and matching.

MS. BONE: Absolutely and I appreciate that. I think just to continue with that point, this initial slide here was representative of the initial working group discussions that we had where, you know, we were using the word qualitative factors. We were using that term, but as we looked through, it was mentioned several times throughout.

You know, we've got a few bullets here which I'll talk about. You know, things can be considered qualitative -- qualitative factors, but there's not a clear-cut definition of what a

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qualitative factor is, et cetera and so, while as we continued our research, realized that we were consistent that we can qualitatively consider factors and we have that high-level guidance, we didn't have specific language that explained when and where and how we should do that and so, it's just to really kind of further emphasize your point that it was challenging to really define the term qualitative factors which is why you see kind of a shift to qualitatively considering factors.

Because really as we looked through past decisions that relied on qualitative consideration, attributes could be -- you know, for whatever reason, one specific attribute could be quantified in one regulatory analysis, but for a different topic on a different -- you know, for a different application or a different, you know, business line, it's much more difficult to quantify. So, that's why we sort of shifted from the terminology of qualitative factor to qualitatively considering factor.

And so, that probably doesn't scratch the itch of anything we just talked about, but just further to kind of get to your point that I agree, you know, we don't have a clear-cut definition and I

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appreciate the note that we need to be more precise moving forward on, you know, when we talk about attributes that inherently don't lend themselves to a quantitative method and when we just -- we have the data, but, you know, it was more of, you know, engineering judgment when we would qualitatively consider versus quantify.

MEMBER BLEY: Before you go ahead.

MS. BONE: Sure.

MEMBER BLEY: It strikes me that being precise about what we mean by qualitative factors isn't the right answer.

To me, the right answer is telling as much as we can about what we know about the quantitative side and as we said, you get examples with high and low numbers. That sort of thing, but how likely are they? What drives you to this side? What drives you to that side?

And then if you're forced to move to something more qualitative, at least you've given the people who have to consider this the best understanding you can about why you're backing away from quantifying and what is it about this information? How much do we have and what can we say

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about what we do have?

MS. BONE: Thank you. Yes. Thank you for that note.

So, just to close up this slide, on the second major bullet, as I mentioned, within our working group, we looked at past Commission direction and guidance with regard to qualitatively considering factors and we know that our current practice to quantify and to qualitatively consider is consistent with guidance as well as past Commission direction.

So, the first note we make here is within our regulatory analysis guideline the current revision NUREG/BR-0058, Rev 4. It does give us the direction that we should quantify when possible. You know, we make the note here even if there are high levels of uncertainty, but when it is not possible to quantify, one should qualitatively consider and that costs and benefits that are determined to be unquantifiable should be identified and discussed qualitatively.

So, it's just, you know, in this initial step in practice, we wanted to make sure that we were even consistent with, in fact, discussing things qualitatively.

The second sub-bullet here, you know, is

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from SECY-77-388A and, you know, prior to 1983, cost-benefit analyses were called value-impact analyses and so with the value-impact guidelines addition, the staff was instructed to qualitatively consider factors as well as quantify them.

And just one quick note in history, in that guidance in 77-388A, the use of the terms value and impact was initially recommended by the NRC staff who felt that benefit and cost carry the connotation of measuring only in dollars and hence was too restrictive.

So, that's just a note that showed us as we were looking through the history that even at that point the staff was hesitant to put too much emphasis on the quantitative aspect of it and that qualitative considerations were, in fact, important to the overall decision-making process.

So, of course, these two sub-bullets mention regulatory analysis.

We do have one sub-bullet here discussing backfitting -- the Commission direction on backfitting. Which specifically noted that within the substantial increase of safety criterion that that determination could be made qualitatively. So, again,

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very high level justifies to say that our current guidance and past Commission direction do allow the general use of qualitative considerations.

Slide 6, we talk about the various aspects within the regulatory framework where we do consider qualitative considerations. From the high level to the NRC risk-informed decisions, the use of qualitative factors as well as staff which was in the decision-making process.

The Commission safety goals and the PRA Policy Statement both discuss the importance of qualitatively considering factors. Specifically calling out defense-in-depth and the Reg Guide 1.174 notes that decisions are expected to be reached in an integrated fashion considering traditional engineering and risk information and must -- and may be based on qualitative factors as well as quantitative analyses and information.

Then the next level adequate protection determinations or this next bullet here. As we mentioned in SECY-12-0110, the consideration of economic consequences would then be NRC's regulatory framework. Adequate protection determinations are limited to public health and safety and common defense

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and security matters and are determined at the discretion of the Commission.

So, within the determinations, qualitative factors have been used before and we point out that really the only related quantitative measure is the power reactor safety goal surrogates to the quantitative health objective -- of the quantitative health objective.

So, the one note that we make here in our paper specifically this paper does span the entire NRC and so, of course, this only applies to power reactors.

MEMBER STETKAR: Is the only related quantitative measure those surrogates core damage frequency and either conditional containment failure probability or large early release frequency or whatever you want to call that stuff? Is that simply limited because the tools that are available to the staff don't actually quantify things in terms of public health? I'm talking about level three PRA models for instance.

MR. SCHOFFER: No, I --

MEMBER STETKAR: Which actually do quantify public health.

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MR. SCHOFER: No, I know that, but can you ask the question again? I'm --

MEMBER STETKAR: Okay. You seemed to be saying that one of the bases -- you know, one of limitations at least the way I interpreted the discussion as I read it and as I heard it today was that the only quantitative measures that you can use are core damage and use -- I think in the paper you use conditional containment failure probability or, you know, some surrogate for large releases.

MR. SCHOFER: Large early release. Yes.

MEMBER STETKAR: And you mention that while you couldn't use that, for example, in a spent fuel pool study because well, it's not a reactor core inside a reactor vessel and that seems to be though determined by the tools that you have available not the fact that if you have a tool like if the staff local three PRA models, you could quantify health impacts from small late releases versus large early releases versus releases from the fuel pool versus releases from dropping a fuel element on the floor versus anything.

So, that's tool limitation. It isn't necessarily policy or Commission direction on it. Is

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it?

MR. SCHOFER: No. I mean the safety goals as you know are qualitative. The QHOs or the quantitative health objections that were defined and then a NUREG calculated that the core damage frequency of 10 to minus 4 and the large early release 10 to minus 5 would substantially meet, you know, the QHOs and so, that has been typically used as, you know, the vehicle to do that screening.

Lacking the appropriateness of using those surrogates, you go back to the safety goal qualitative. Which is what was done.

MS. BONE: And then our final bullet here.

When regulatory action is needed and determined that it's use for beyond adequate protection requirements, we look to the, of course, backfitting procedure. Cost-justified substantial safety enhancements and NUREG-1409 or backfitting guidelines state that the backfitting rule does not require a strict quantitative analysis.

So, again, within backfit determinations and this is really the basis for the remainder of our slides here. We use qualitative consideration of factors.

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MEMBER SCHULTZ: And if you will, I mean that works both ways. This is just a statement that it -- to make an argument that a backfitting is required or that a backfit is not required.

MS. BONE: Right.

MEMBER SCHULTZ: One does not have to do a strict quantitative analysis.

MS. BONE: Exactly. Yes.

MEMBER SCHULTZ: The argument can be framed differently.

MS. BONE: Yes. So, the last couple of slides, we just talked about the past president and where we've historically used qualitative consideration of factors and so, we have an enclosure in the SECY paper that provides actually a list of past NRC regulations that have relied on such qualitative considerations.

We also include a list of the actual factors that were discussed qualitatively. We have a few here. Defense-in-depth being the first and the most publicized one I guess I would say. Increased security capabilities. Improved state of knowledge and increased public confidence, increased regulatory effectiveness all have not typically lent themselves

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to a quantitative evaluation.

MEMBER REMPE: So, like when I look at these qualitative factors and what their importance is and maybe how important they should be, one can't help but go back to the filtered example and what was in the Appendix L of the Academy's report where -- of course, there were a lot of reasons. You're comparing apples with oranges, but there were some major factors that just weren't considered in the quantitative analysis.

And it seems to me that perhaps more emphasis should be on beefing up the quantitative analysis than worrying about the qualitative factors and do you have any thoughts on how important the two things should be and what the emphasis should be?

MR. SCHOFER: They're both important. Yes, I think, you know, we should do what we can to beef up the quantitative. However, in many cases, there always will be a qualitative.

Now, in terms of how important it will be and whether it will cause, you know, a change in the decision that, you know, counters what was calculated for the net benefit is really the thrust of what we're talking about today.

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But, yes, I mean doing qualitative is not a substitute for doing a good job with a quantitative.

MEMBER REMPE: Right.

MR. SCHOFER: Did I address --

MEMBER REMPE: Yes, it just seems to me that there were some major gaps or whatever --

MR. SCHOFER: The recent Fukushima report.

MEMBER REMPE: Right.

MR. SCHOFER: Okay.

MEMBER REMPE: And things that weren't considered and it sure seems like that maybe that that should be considered and they're quantitative measures. Things that should be considered in the analysis.

MR. SCHOFER: Okay. I have not done, you know, a really thorough job, but I have looked at their report and, you know, some of the differences in costs were, you know, Japan has a huge impact from Fukushima. Had to do with the shutdown of all their nuclear reactors and the cost of replacement energy resulting from that.

MEMBER REMPE: Replacement energy, housing the people that were evacuated.

MR. SCHOFER: And we do replacement energy

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as well, but there is a difference in that for them what they had to do was start importing huge quantities of liquid natural gas that they do not have on the island and so, to create that replacement power, they had to buy the fuel plus, you know --

MEMBER REMPE: And in this the end -- could be different.

MR. SCHOFER: And so --

MEMBER STETKAR: If you just look at replacement power from the affected plant, you don't -- from the whole industry.

MR. SCHOFER: No, I mean if you looked at a number of the studies we've done, we also look if there's another unit on site. We consider that and in addition, as a sensitivity, we looked at all the BWRs being shutdown for the --

MEMBER STETKAR: If it happens, all 20 is going to be shutdown.

MR. SCHOFER: We have not --

MEMBER STETKAR: One hundred and four units or a hundred and -- however we're down to nowadays.

MR. SCHOFER: We have not -- we have not done that. We have not done that.

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MEMBER SCHULTZ: The Mark I.

MR. SCHOFER: We have done Mark I. Yes.

MEMBER REMPE: But, replacement shelter and housing for people that have evacuated.

MR. SCHOFER: We do -- no, we do -- that's calculated as part of MACCS and that's done -- part of that model. But --

MEMBER STETKAR: There may be industry-wide --

MR. SCHOFER: Hum?

MEMBER STETKAR: You know, you haven't traditionally looked at industry-wide implications like shutting down all the plants or after TMI, what was the cost of retrofitting every plant in the country with --

MR. SCHOFER: Well, yes, that goes back a ways.

MEMBER STETKAR: No. No, I'm -- you know, but in that sense, that every plant in the United States incurred measurable costs --

MR. SCHOFER: Absolutely, but --

MEMBER STETKAR: Water reactors versus pressurized. Everybody.

MR. SCHOFER: But, those weren't cost-

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beneficial decisions. I mean a number of those were adequate protection. They went in and those costs were not calculated.

MEMBER STETKAR: Perhaps bad example.

MR. SCHOFER: And we've had examples of that for Fukushima as well. Where things were implemented without costs being calculated. So, recent example as well.

CONSULTANT SHACK: GSI-191 was in compliance. So.

MEMBER SCHULTZ: Unless you're here again and just in terms of terminology and communication, you listed this as examples of factors that are difficult to monetize.

Do you mean difficult to quantify as well as monetize? I mean why was monetize chosen?

MS. BONE: I think --

MEMBER SCHULTZ: That's --

MS. BONE: It was difficult quantify. We didn't want to make terminology here.

MEMBER SCHULTZ: Have you chosen one monetized? Well --

MR. SCHOFER: There's actually three.

MEMBER SCHULTZ: All right.

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MR. SCHOFER: You can quantify.

MEMBER SCHULTZ: Yes.

MR. SCHOFER: And monetize. You can quantify and some things you can't quantify at all. So.

MEMBER SCHULTZ: So, what is -- are all of these -- I mean why was monetize chosen here is what I'm asking?

MEMBER BLEY: Are you saying if you can't monetize you won't quantify? Is that what you're saying? That's an excuse --

MR. SCHOFER: No. No. No. No, we didn't say that. Because --

MEMBER SCHULTZ: I would have chosen quantify, but --

MEMBER BLEY: Yes, me, too.

MR. SCHOFER: Well, some things you may be able to calculate, you know, a unit-type cost so that you can do a cost-effectiveness type evaluation. But, you may not be able to monetize it.

MEMBER SCHULTZ: Maybe I would have chosen both, but all I'm saying is that communication is important.

MS. BONE: I agree with you.

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MEMBER SCHULTZ: So, choice of words throughout the presentation to describe why we're going forward and what we're going to do when we move forward. Again, with the whole project, I'm trying to understand where we expect to get to. So.

MR. SCHOFER: Okay. Let me say one last thing. It is most difficult to quantify and monetize.

MEMBER SCHULTZ: Yes, of course.

MR. SCHOFER: It is then quantify and then non-quantify. So, those are sort of kind of the levels and certainly these are very difficult to quantify and monetize.

MS. BONE: Yes, I think it would have been more accurate or better for this particular presentation to say quantify. Perhaps monetize is not inaccurate for this, but I think -- I completely agree with you.

MEMBER SCHULTZ: Right.

MS. BONE: But, communication and consistency of terminologies is really important.

MEMBER SCHULTZ: I agree with that.

MS. BONE: Yes.

MEMBER SCHULTZ: I mean first you have to quantify it and then you have to monetize it.

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MS. BONE: Right.

MEMBER SCHULTZ: Those are two different problems.

MS. BONE: Um-hum.

MEMBER STETKAR: I think the examples in that and furnished are really useful because I sort of went -- I didn't dig into the details, but reading through them, I tried to go through the exercise of how easy is it to quantify -- forget about the monetizing part of it.

MEMBER SCHULTZ: Right. Exactly.

MEMBER STETKAR: And indeed, you know, the agency is faced with a lot of decisions. We tend to focus on things that are nuclear reactor safety related. Which I think in general can be more easily quantified than a lot of the decisions the agencies are faced with.

MEMBER SCHULTZ: That's true.

MEMBER STETKAR: And indeed, you know, I came up with about a 50/50 split of things that might be quantifiable or might not be quantifiable. So, the examples were a lot more useful than any simple, you know, presentation on a set of slides might be.

MEMBER SCHULTZ: I agree.

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MS. BONE: We did a similar exercise of just looking at the current guidance with regards to qualitatively considering factors for Federal and international agencies. There were several documents that discussed or recommended that Federal agencies qualitatively consider factors beginning with Executive Order 12866 that noted that costs and benefits shall be understood to include both quantifiable measures and quantitative measures.

The OMB Circular A-4 regulatory guidance also discussed that a good "regulatory" analysis should include both quantifiable and qualitative factors and both of these are again high level. So, it doesn't exactly tell you when and where and how, but does give you the ability to qualitatively consider factors.

The OMB OIRA Regulatory Impact Analysis Primer that we have noted here gets into a little more detail in -- that talks about factors that are talked about quantitatively should discuss -- just what we were talking about before. Sort of the importance of each factor, the rationale, why the analyst chose to qualitatively consider things. So, it provides a little more detail, but again, everything is at pretty

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much level.

In the international community, the importance of qualitative factors is throughout or qualitatively considering factors. I should be consistent with my own terminology here.

But, again, very little specific guidance on how to discuss things qualitatively.

There is an OECD/NEA report that we've looked at here that really kind of talks more about quantifying factors and various practices with regards to economic consequences. But, it does talk about the importance of qualitatively considered factors. Even if you can't quantify or then subsequently monetize, you should qualitatively consider certain factors that are important.

MEMBER STETKAR: Alysia, is that report in ADAMS?

MS. BONE: I can double check.

MEMBER STETKAR: I thought it's -- I'm chief and I tried to get it through OECD, but they required me to pay money and I don't do that.

So, if it's in ADAMS, I'd appreciate a reference to it.

MS. BONE: Sure. I can double check. I

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thought that there was a publicly available one.

MEMBER STETKAR: I couldn't get it through the OECD website anyway.

MS. BONE: Okay.

MEMBER STETKAR: They wanted money.

MR. SCHOFER: We'll find --

MS. BONE: Yes, I'll make --

MR. SCHOFER: -- a public version.

MS. BONE: Yes.

MEMBER STETKAR: Well, as public version says something.

MR. SCHOFER: Yes.

MEMBER STETKAR: But, if there's a non-public version on ADAMS, I wasn't --

MS. BONE: Sure.

MR. SCHOFER: Yes.

MEMBER STETKAR: I didn't search.

MS. BONE: I'll make sure. I'll make sure we get that to you.

MEMBER STETKAR: Thanks.

MS. BONE: Slide 9 here is really illustrating Enclosure 2. Which is similar to Enclosure 1 on our past NRC regulations that have relied on qualitatively considered factors.

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This discusses that every year OMB provides a report to Congress on benefits and costs of Federal regulations and so, the staff reviewed the 2013 report and so, there were 47 major rules evaluated. Twenty-two of the rules were transfer rules. So, this is not included in this actual pie chart here. So, this just showed the qualitatively considered attributes versus the monetizing. So, these were specifically monetized within that report.

And so, from that 22 remaining or 25 remaining non-transfer rules, 14 of them included monetized benefits and costs. Nine of the remaining 11 reported monetized costs or cost savings without monetizing the benefit and two of the 11 only monetized benefits.

So, again, this is just to show that, you know, we've got almost half here of the overall major rules within the Federal -- this report that were not transfer rules. That included non-quantified costs and benefits. So, it's just showing the precedent again.

Okay. Slide 10 and 11 here discuss -- we get kind of into the discussion section of the SECY paper itself and talk about the specific scenarios

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back in -- within the regulatory -- NRC regulatory framework where qualitative consideration of factors might arise and so, this is within cost-benefit analyses.

Scenario A includes scenarios where benefits cannot be quantified and are presented qualitatively or I should say benefits are not quantified and are only presented qualitatively. Costs are quantified.

So, here we don't have a mixing of benefits that are qualitatively discussed and quantitatively discussed. They're only presented qualitatively and this scenario has applied in the past to security related and non-power reactor regulatory actions.

Scenario B discusses some benefits can be quantified. Others qualitatively considered, but costs are quantified.

So, we do have a mixing of benefits that are discussed quantitatively and that are discussed qualitatively. The net benefit of the quantitative analysis is positive.

So, even if you do have benefits that are discussed qualitatively, the justification --

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quantitative justification would have been -- would have justified a regulatory action. So, any qualitative supplementary clause, qualitative argument will just make your action more positive or more health beneficial.

So, neither Scenario B or Scenario A has historically been controversial or really the subject of the SRM.

That gets to Scenario C where some benefits can be quantified. Others are qualitatively considered. So, you have the mix of qualitatively and quantitatively considered benefit.

Costs are quantified and the net benefits of the quantitative analysis is negative. So, the qualitative considerations are used to support the regulatory action.

So, of course, this was a case with the filtering strategies regulatory analysis which we've been talking about and the subsequent SRM for this paper.

MEMBER SCHULTZ: So, do you propose scenarios in which the qualitative factors are non-beneficial or could have attributes that are beneficial? Some of which are beneficial and some of

which are non-beneficial.

MS. BONE: I'm sorry. Can you repeat that?

MEMBER SCHULTZ: Yes. Qualitative factors can represent benefits.

MS. BONE: Yes.

MEMBER SCHULTZ: And you can have qualitative factors brought into the discussion which are risks. They're non-beneficial and yet, the examples that you provide here are all well, we've got these things that we're going to throw into the pot of decision making and they're qualitative, but they're benefits.

MS. BONE: Right.

MEMBER SCHULTZ: So, if I were confined to have a discussion about whether this should -- an issue should move forward and what I'll also say well, there are qualitative factors that are non-beneficial.

MS. BONE: Right.

MEMBER SCHULTZ: Shouldn't be also put those into the evaluation?

MS. BONE: Um-hum. So, essentially, qualitative costs would be another.

MEMBER SCHULTZ: Well, I don't look at it

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that way, but --

MS. BONE: Okay.

MEMBER SCHULTZ: Yes.

MR. SCHOFER: The answer is yes.

MS. BONE: Yes.

MR. SCHOFER: They're both included. Yes.

MEMBER SCHULTZ: Okay.

MR. SCHOFER: And so --

MEMBER SCHULTZ: Because in lots of the discussions we have we talk about well, here's a list of qualitative factors that weigh in favor of the decision. But, rarely does one bring in qualitative facts that are not beneficial to the decision --

MS. BONE: Right.

MEMBER SCHULTZ: -- moving forward.

MS. BONE: I agree with that.

MEMBER SCHULTZ: So, if we're going to come up with a process that incorporates qualitative factors in a more aggregate way, then both need to be incorporated.

MS. BONE: So would we.

CONSULTANT SHACK: B1 and B2.

MEMBER SCHULTZ: Um-hum.

MS. BONE: Um-hum.

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MR. SCHOFER: And actually, that is part of our guidance to consider both qualitative benefits and qualitative, you know, just benefits or costs.

MS. BONE: Yes.

MEMBER SCHULTZ: Right.

MEMBER SKILLMAN: Does the term costs quantified for all four of those scenarios assume that the costs quantification is known to be accurate?

MR. SCHOFER: What we know about -- when we do reg analysis or doing forecasts, I mean we have both, you know, implementation costs which may occur in the first couple of years, but then there could be recurring costs or future costs that we have to forecast. So, there is, you know, some level of accuracy or inaccuracy associated with those estimates.

CONSULTANT SHACK: I was just to point in your filtering strategies regulatory guidance you had your qualitative factors, but you had both negative and positive qualitative factors.

MR. SCHOFER: Um-hum. Um-hum. Yes, I agree with that. You still look perplexed.

MEMBER SKILLMAN: No, I'm just thinking. You can be very persuasive as to whether you should do

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something or not if you bias the costs one way or the other.

So, the quantification of costs is a very critical piece at arriving at a good decision.

MR. SCHOFER: Um-hum. No, it's -- totally agree. Thank you.

MS. BONE: And the last scenario is when again we have the mixing of qualitative and quantitative benefits. Costs are quantified and the -- but, the recommendation only relies on the quantitative analysis. So, the qualitative factors are just presented for information.

So, those four scenarios were just to kind of organize how historically these -- we use qualitatively considered factors in our past regulatory actions.

After reviewing the past Commission guidance on this, the current NRC cost-benefit guidance on this as well as international and Federal agencies practices, we, as a working group, came to a number of conclusions.

The first is just generically qualitative consideration of factors is important to understanding the overall impacts of a regulatory action. So, it's

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key in our decision-making process.

This is also aligned with other Federal and international agencies practices and, therefore, the NRC's current framework for considering qualitative consideration of factors is sound. So, just being able to do that is consistent and sound.

However, as we've kind of been alluding to throughout this presentation today, the lack of specific guidance for how, when, et cetera to consider factors qualitatively have led to a perception that qualitative consideration of factors can be arbitrarily weighted against quantitative consideration of factors.

And so, as I mentioned, I know we've gone through a lot of background on just whether or not we can consider factors qualitatively, but it was just to first insure for ourselves that we were in our bounds to consider such qualitative factors.

So, based on this, the staff finds that developing guidance to clarify the potential tools available to analyze factors qualitatively would enhance the transparency and consistency of the regulatory process.

CHAIRMAN RAY: Okay. Let's --

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MS. BONE: Yes.

CHAIRMAN RAY: Let me ask a question.

MS. BONE: Sure. Sure.

CHAIRMAN RAY: How is that to take place?

The thing that I found most, and I've reviewed all of this honestly, missing was the -- apparently the idea we're going to incorporate this in the updated guidelines and we'll send it to the Commission when it's done. But, there's nothing said about takes place during that process.

Do you have any plan you can share with us?

MS. BONE: How we would actually developed that guidance?

CHAIRMAN RAY: Yes. For example, if we had input that we would make known, but maybe it would be more appropriate when we've got something actually on the table.

MS. BONE: Absolutely, I think -- and, you know, feel free to jump in and add, but I think that we would develop this guidance similarly to the way we're developing other guidance. For instance, the dollar per person rem conversion factor policy is, you know, we're working on that technical update. We'll

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be converting to a draft or draft NUREG. We plan to come to the ACRS with that. So, it would, you know, be that standard sort of process.

CHAIRMAN RAY: You're -- to me at least as the Subcommittee Chairman, that's what's the most missing thing here. Is if you're going to try and give -- have that input now and hope that they'll take it and use it. Are we going to get a chance to see something more specific and tangible and give you feedback on that?

MS. BONE: Yes, of course and every feedback that you give us now we'll also, you know, take into account. We will have more. Yes.

CHAIRMAN RAY: I mean so -- in terms of feedback until we all run out of time, but I guess I'm interested in seeing something that you propose that then we can respond to rather than lectures about what we think you ought to do.

MS. BONE: Absolutely. We will have a more concrete. You know, if this direction is approved by the Commission, you know, to continue considering factors qualitatively, but enhance our practice through guidance, we would then develop that guidance and provide it --

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CHAIRMAN RAY: You wouldn't object if our comments in a letter were simply to say that yes, they have interactions with us as you do this so that we can comment on something more specific than whatever --

MS. BONE: Absolutely.

CHAIRMAN RAY: -- thoughts come to mind today. Because there isn't much to comment on here actually.

MS. BONE: Yes.

CHAIRMAN RAY: Other than, you know, other things that we can refer to, but that's not part of what you're proposing to do yet.

MS. BONE: Right.

MR. SCHOFER: Actually, I think you're going to have lots of opportunities because a lot of what we're proposing is already allowed within our current guidance. It's just a matter of practice and having additional instructions and rules in terms of how to apply, when to apply and that type of thing.

So, as we are proceeding going forward, we are adopting these improvements into our upcoming reg analysis and so, when those issues come before you, you'll be able to provide, you know, comments on that

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draft.

CHAIRMAN RAY: Well, but sometimes they show up at a time that's really inconvenient for everyone concerned and I guess I'm thinking that it would have been -- it would be preferable, put it in the past tense, if we had something that we could hang onto more. Like I'll wait until I see X, Y or Z and then I'll comment on that instead of trying to imagine what you're going to do or not do and tell you what we don't like about that.

So, there's nothing we can do about it right now. I'm just saying that I understand your input to us to be well, yes, you did expect to get feedback from us on more specific things as you develop them.

MR. SCHOFER: But, having that, you know, in your letter indicating that you want that interaction, I mean would welcome that as well.

CHAIRMAN RAY: Okay.

MS. BONE: So, the actual proposal, as you mentioned, we -- as part of our overall plan to update cost-benefit guidance, we propose to include a set of methods that could be used for the qualitative consideration of factors within a cost-benefit

analysis for regulatory analysis and backfit analysis.

So, we have an enclosure that lists -- Enclosure 3 that lists some of these possible methods.

That would be fleshed out further. Would be brought, you know, through the usual means, interacting with the ACRS, public comments, et cetera, et cetera. To then be implemented into our overall cost-benefit guidance.

Any methods we use to update our guidance should be consistent with the PRA policy statement as characterized in Reg. Guide 1.174.

And just as an example of something that we would need to include in our updated guidance would be that regulatory analyses and backfit analyses the decision rationale should include, as stated in the OIRA primer, you know, descriptions of each factor that is considered qualitatively, why the staff made the decision to discuss it qualitatively, what's the significance or importance of each factor, how that overall factor then contributes to overall integrated decision-making process. The overall recommendation.

And as we mentioned, if the Commission approves this plan, then the guidance would be developed as part of our overall plan and provided to

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the Commission for approval.

MEMBER STETKAR: Alysia, now I get to come back and close the loop. The only thing I see on this slide, everything that you said emphasizes to me delving into Enclosure 3 and doing a bunch of research on what the appropriate decision matrix is. I think it's weighted factors on -- based on qualitative factors and things like that.

There's a semblance in the staff's proposal that you didn't mention and that's what bothers me and it say that guidance would also include information regarding how and when to apply the methodologies. That to me is the most important thing.

What I do with the qualitative fact, how I assign attributes to the qualitative factors is much less important to me that how or when did I finally fall back to being lazy, and I'll use the term again, and use or deny what's going to be a prescriptive set of many matrixes to weight things so that they're transparent to someone.

And I understand that and I'm not trying to down play. I do actually think it's important to do that part of the process because it's not as

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transparent as it could be. So, I'm not trying to down play that. I think it is very important. I personally endorse that notion of becoming more rigorous let's say in terms of evaluating the qualitative factors and displaying that decision process -- that part of the decision process.

But, what you've glossed over here and what gets glossed over in only one sentence in your recommendation is that guidance on how and when to finally default to qualitative factors. When is our ability to quantify the uncertainties and display those uncertainties deemed inadequate. So that this is our only position or that we must augment the quantitative information with these qualitative factors.

I don't see any emphasis on that. I was hoping that you'd, in the presentation, at least give that part of the problem equal emphasis as going through Enclosure 3 and trying to do some research on what the appropriate criteria are that you use once you do a qualitative assessment.

MR. SCHOFER: It was not our intention to down play that. I mean, you know, we're kind of thinking of this in terms of, you know, the whole

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issue of this paper came about as a result of possibly the overuse and so, you know, we want to at least describe if they are used, you know, how would it be different. What -- you know, have more transparency in, you know, establishing the significance and possibly the importance and possibly identifying any biases that may occur as a result of that consideration. So, that was not our intent to down play it.

Our first approach is to quantify and we're looking to improve our ability to do that and, you know, when we come back --

MEMBER STETKAR: It doesn't come through.

It certainly doesn't come through to -- I'm obviously sensitized on one end of the spectrum. I fully admit to that.

To someone who is not sensitized to either end of the spectrum, I would submit that reading the SECY paper with many, many pages justifying the historical use qualitative factors and the fact that they are and should be used in much of the decision-making process tends to perhaps inadvertently, but to my reading anyway, down play this notion of quantification and justification why the quantitative

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estimates are inadequate should be included in that guidance.

MR. SCHOFER: That wasn't the intent.

MEMBER STETKAR: Okay.

MR. SCHOFER: The intent was to address the task assigned and in establishing the bounds of that, we look at the -- not only the Commission voting sheets, but also the correspondence that was sent to the Commission that relayed, you know, possible overuse of qualitative factors.

So, when we looked at what the issue or the balance of the issues were, we wanted to make sure that first off, we, as an agency, understood the foundation of qualitative factors. What is the history? You know, what is our basis for usage?

So, there's a lot in the paper with regard to that simply because we want to preclude, you know, the question as to should they be used at all.

MEMBER BLEY: Can I interrupt you guys for a minute?

Something about this always leaves me confused. Okay. It's like, you know, over in safety where we talk about deterministic and probabilistic. Well, you can't do probabilistic without

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deterministic.

Over here, qualitative factors aren't something alien to quantitative. You've got to do the qualitative looking and in-depth, we understand how and what to quantify.

Then at some point, you might find as you lay out the data you have and the uncertainties in it that it's just not enough to process mathematically to get you an answer. But, at that point, you can say why it's not and you continue using all of the aspects of the analysis relevant to the question.

So, to me, it's really an integrated piece, but sometimes you can't do it all and this with its front end that talks about others who uses qualitative. Everybody uses qualitative factors from time to time. I mean you can't do anything without it.

So, it just seems to me we're polarizing an issue well beyond where it ought to be and you're pointing out where they're integrated and why you have to do both together. It seems to me the sensible position.

And then it leads you to a point that you don't arbitrarily say I don't have enough data.

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You've laid out what you've got and you say I can't process this any further, but all of these things lead me to one side. All of these lead me to the other and I've considered what could drive me either way. The uncertainty is that it's a whole piece of cloth.

I just get tied up here in all of our discussions about --

MEMBER SCHULTZ: Otherwise, I think you run the risk of really confounding the decision-making process and you run the risk of putting the agency in a position where you do what you feel. As you said, Fred, well, we always do the quantitative when it's available and we put that argument together, but if you start to separate it -- as at least Dennis has indicated, if you start to separate it, then you run the risk that the decision will never be reached because they'll be factions that will say well, you haven't considered all of these other qualitative factors and we think that those qualitative factors are going to push the decision in favor of moving in this direction and that's not where we want to be.

So, you really have to start off as we have considering and aggregating all of the features that render the decision and work it through as has

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been done.

MR. MOHSENI: You know, there is an art that has formed behind the scenes in the rulemaking world for the practitioners that these individuals are.

It is very much an evolutionary thinking over time that has evolved without the participation of a lot of external constituencies that you see now.

For example, very few people ever read the very lengthy discussions in every rule that comes out and there's a lot of qualitative assessments done all the time.

It is almost like you decide to go buy your car and you don't know how much of your decision is based on the price or the qualitative factors that go into it in choosing the car that you choose.

These guys have become experts in the background, but actually putting a frame to that part that we never talk about. It's the qualitative piece.

We usually talk about how expensive a car is or the aesthetics of the car is not quantified. It's just appealing to the individual who actually chooses that.

And there are so many factors that are

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available in any rulemaking that influence one way or the other the decision making and at some point, the cost of doing, you know, it takes four years to do a rulemaking package. You can imagine the amount of assessments and analysis that goes behind the scenes.

But, ultimately, ends up being a very short paragraph. But, behind that short paragraph, you can actually sit down and look at the -- almost the Ph.D. dissertation behind it. Almost I say in respect to you guys.

But, generally, there is the evolution that's taken place has taken place without public scrutiny if you will.

We've had a lot of scrutiny in NEPA space.

NEPA, for example, does the same thing. I mean it has cost analysis in it, benefit and affecting decision making and it has had more scrutiny on it. But, this evolution here hasn't officially received the scrutiny, but nonetheless, it's at the same level of professionalism and lack of -- you know, the opposite of arbitrary decision making that goes into it.

And it's -- you can't -- it's hard to duplicate a certain package that goes to the -- for

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example, the filtering strategies that it is at a -- you know, it has so many attributes that are out there in the future. You have to predict so many of the benefits of that and they're not necessarily easily quantifiable and if those attributes were to be written each and every one of them to the length that perhaps satisfies the Members, it would be probably in the tens of thousands of pages if you really asked for it.

On the other hand, they -- based on their experience, they kind of do filter that enormously and bring it down to maybe a paragraph or two, but behind it there's a lot of work that has gone into making those two paragraphs stand out.

I just want to kind of, you know, kind of -- there is -- remind everyone that this has been going on for many years and evolution has taken place significantly and that it has never received major complaints if you will for those who have actually looked at it. But, on the other hand, when it becomes a critical piece of a very visible decision making such as the filtering strategies that it doesn't lend itself to too many quantifications. Then obviously, people can open the door which is what has transpired

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basically. Go back and take another look at your guidance and see if you can improve.

But, to the extent that cost matters in the regulatory worlds, you know, we can't just be -- you know, we don't have infinite resources to expend and we use the best practitioners we have.

There are -- there's always room to improve. I assure you that. I mean this is not different than many other products we produce, but it is by no means one that actually lacks credibility and brings questions into the decision-making process. At least to my knowledge, it hasn't done so for many years that this has been going on.

Just bringing that point to your discussion with -- with all the good, you know, comments we're receiving and I assure you we take those comments very seriously and we will take them into account as the guidance is developed and you make very good comments.

But, on the other hand, in fairness to the team, there's been quite a bit of development behind the scenes that hasn't really received the attention until now.

MS. BONE: Thank you, Aby.

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I think ultimately the goal for this proposal -- you know, within the working group we did go through many configurations of, you know, what's the best next steps. After we did all of our background research, what the best next steps were and the kind of framework we sort of settled on was a business-improved model.

That, you know, as you mentioned before, everybody considers factors qualitatively. So, how can we just do that better? How can we make our practice more transparent? How can we be more consistent across business lines? Which again is what we aim to within SECY-12-0110. The consideration of economic consequences.

So, kind of feeding back into that, how can we be more consistent across business lines, more systematic in the future and so, through this guidance development, that's what we're aiming to do.

We looked at sort of potential disadvantages of this proposal and again, it centers on resources. Even though our cost-benefit guidance is budgeted, you know, this would be a small incremental increase in the resource needs and potentially a small incremental increase in resources

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for each regulatory analysis or backfit analysis.

But, you could also make the argument that when we do have a more systematic process in place, more robust guidance and tools, that that actually could be more efficient for the analyst.

So, again, this was just sort of the back and forth determination that we made within our working group for our overall proposal.

This is the last slide of my main body of my presentation. We've got several reference slides and some background slides on that Enclosure 3 which mentioned some various methodologies and tools, but I'm happy to entertain any other specific questions that we've talked about before or regaining our backup slides.

MEMBER SCHULTZ: So, Alysia, there are a wide variety of decision-making tools that are available. Is it intended to work through a process to then prescribe a -- when you say a set of methods, is it going to be -- oh, here's a number of options. We have 20 because there are 20 and more that can be selected. You know, can go to the PFD theses and --

MS. BONE: Absolutely.

MEMBER SCHULTZ: -- the varieties of

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different approaches which could or can be used and they all have a range of quantitative evaluation of qualitative features.

My general concern is when you get to so, okay, the rationale should include these three features, describe them, significance of each factor, that we could create a process here that could prevent decision making in many different instances where we ought to move forward because we don't know how to proceed.

We've got a new set of methods now to consider qualitative factors which we didn't have before, but we did make decisions.

How do we move forward so that we don't in the wish for transparency create this variety of processes that --

MS. BONE: Absolutely.

MEMBER SCHULTZ: -- confuse the issue rather than clarify it.

MS. BONE: That is something that we -- you know, we've had lots of internal discussions on that. That's come up in our discussions within our working group, within our steering committee.

There is that concern that we don't want

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to be overly prescriptive. We don't want to make a process that's streamlined overly complicated.

I'm sorry to say I don't have a very satisfying answer at this point.

MEMBER SCHULTZ: Right.

MS. BONE: But, we do know that, you know, balance is key. That we are trying. You know, currently our guidance has very little in ways of, you know, being prescriptive on how we kind of deliberate these qualitatively considered factors, but the last thing we do want to do is make an overly complicated process that will just hinder the decision-making process.

So, I completely understand and empathize with that concern. I think as we go through an actually develop the guidance, that's going to be at the forefront of our minds how we can establish that moderation, that balance between overly prescriptive and, you know, this perception that this can be used arbitrarily.

So, do you have some?

MR. SCHOFER: Sure. By the way, I haven't continued to introduce myself. So, I'll do it now. Fred Schofer, NRR.

The idea is to have a toolkit that is available to the analyst for helping them clarify their thinking with regard to how they considered qualitative factors, their importance, possibly their biases so that it could be better communicated with regard to the decision maker.

So, the idea is to certainly get away from just a simple declarative statement. Obviously, you know, it's safer, it's better, it's faster, whatever for this much money. That you may see in some reg analysis. So, we want to get away from that. We want them to at least consider using various tools to help, you know, identify, you know, what is it about this factor that a decision maker should be convinced that it's important to go forward with this alternative.

So, it's as simple as that. We're not looking to gum up the works and make this into, you know, an unscheduled research project which never gets done. But, we want to have, you know, more, you know, description with regard to why is the factor important or why is this attribute important, why is it -- you know, how does it, you know, weigh versus a cost, why -- you know, what was the total decision process to go forward with the recommendation.

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CHAIRMAN RAY: Well, Fred, you talk about giving a toolkit to the analyst.

Do you think there's a risk at the same time of restricting the decision maker's freedom to decide?

MR. SCHOFER: We --

CHAIRMAN RAY: Isn't part of somebody's goal here?

MR. SCHOFER: No. No. Actually, what we're doing --

CHAIRMAN RAY: That happened. Didn't it happen or --

MR. SCHOFER: I'm not saying it can't happen, but what we're trying to do is, you know, if there's a bias by the -- on the analyst's part in terms of how they're presenting the material --

CHAIRMAN RAY: Yes.

MR. SCHOFER: -- we believe that by using this toolkit that those biases will be better presented and so, that they can be recognized as such.

The decision maker has the option of completely disregarding the reg analysis. That's one extreme. Not to say that that is one that I would promote, but, you know, certainly they can look at the

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factors that went into the decision process, how it was justified and provide their own weighting on, you know, those arguments.

And that's all we're trying to do. Is make that as clear as possible so that the decision maker can do that effectively.

CHAIRMAN RAY: Well, nevertheless, there is the potential that a decision maker will be bound by the toolkit just like the analyst is aided by the toolkit and I just wondered if you'd thought about that, thought that was a good thing maybe or --

MR. SCHOFER: No, we've thought about that quite a bit and I mean we're not trying to, you know, bind the decision maker in anyway. I mean we're just trying to be as clear as possible with regard to the facts that we can present.

CHAIRMAN RAY: Well, it's hard for anybody to find fault with that I would think. Systematic, transparent, consistent. Okay.

But, that's why I sort of reserve judgment until I see something rather than just statements of intent and to see how this really -- because trying to form a toolkit for decisions, but nobody knows what the heck the decision is.

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I mean it's easy to make a toolkit for filtered vents. Right? Just made for filtered vents. That's all.

MR. SCHOFER: Well --

CHAIRMAN RAY: But, to work for every decision that requires reg analysis when you don't know what they are, may be a bigger challenge.

MR. SCHOFER: Yes. And that is a big challenge and we're not looking to be that rigid. Because when you look at the types and the -- of issues that we have to evaluate, I mean they're very broad and they're -- and our analyses are very customized to address those particular -- you know, that particular objective and then to consider the possible alternatives around that objective.

So, I mean we're not going to have, you know, a decision criteria that will be the same each time, that always will have these elements because it's not applicable.

CHAIRMAN RAY: And you -- that's the right response. All I'm saying is that one has to sort of reserve judgment about these things until we see an example of something you're proposing to do. Because right now, the proposal is just to do something that's

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going to make things better, but until you see what the heck it is, there can be all these debates about, you know, I can do it one way. John sees it another.

Dennis raises his question.

And maybe that's useful feedback to you now, but it's hard for me to formulate a comment, you know, that I'd want to put down on a piece of paper without seeing something more specific than what we have now.

MR. MOHSENI: You will certainly, Dr. Ray, see the guidance if we get to the point where the Commission directs the staff to improve and upgrade the guidance and that will be the toolbox and you will see that and you can comment.

If you wanted to see the final products, they're always there. All these rulemakings we've done so far. Take your pick and look at the more complex ones that had cost beneficial components in it. Not the adequate safety ones. They don't have this information in it, but the ones that actually were based on cost versus benefit. They're available and you can look at -- the message I want to leave you --

CHAIRMAN RAY: But, aren't we seeking to

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improve the way we make those decisions?

MR. MOHSENI: Yes, an improvement occurs not because necessarily something is broken there. The practitioners are professionals and are doing their job and so far none of our packages have really reached the point where someone has identified a major flaw with the process.

Lack of transparency, lack of interest, yes. I mean people don't read 20 pages/30 pages more, you know, if they have to. They can read the conclusion. The executive summary and say okay, I get the picture. I know where you guys are going, but the level of detail behind it may not be read all the time. But, that's different and improvement is always needed in every area.

So, this is not like we are -- they are almost going to proceduralize what experience professionals have over time developed in their minds.

So, that the new practitioners who come on board, they have something to follow. There's a little bit more consistency across.

But, you cannot take the subjectivity out of it. This is a subjective process. However you look at it as long as the subjectivity becomes visible

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to the reader, the reader understands what's going into it, that's the best you can expect.

This is not an objective analysis that has every attribute because we can't afford doing that. I mean there's just not enough resources in the way we are dealing.

So, ultimately, you have to rely on the team's abilities to identify what's going into their minds as they are doing the pros and cons.

CHAIRMAN RAY: Two of the three down sides listed for this were a demand on staff resources. First to develop and then to utilize this toolkit. The third one was that it would give a false sense of objectivity to decision making.

Now, listening to you, I would think no, that's not going to happen because we assertively say we're not really seeking to change the subjectivity that necessarily is a part of these decisions.

MR. MOHSENI: See even if you -- even if you improve on quantification of what previously we said, let's stop here at the qualitative analysis. Yes, I can seek more. I can go to Japan and bring their quantitative data into this decision making, but it's going to cost me another \$50,000 and I don't have

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this. I have to wait until next budget year and this whole thing sits around.

Now, imagine the value of delay. That's not, you know, kind of accounted for in your analysis.

Two years of delay to get the budget going. Four years of finding the right staff. These are all affecting a rule that could have been place even though it wasn't perfect.

CHAIRMAN RAY: Yes, you know, I think we're in agreement here.

MR. MOHSENI: These are the other sides. So, it's -- we're not in a --

CHAIRMAN RAY: So, therefore, again, just to reiterate for the fourth time I guess my point, I want to see something.

MR. MOHSENI: You will.

CHAIRMAN RAY: Before I can give you much feedback personally.

MR. MOHSENI: Yes.

CHAIRMAN RAY: Or as a -- just as a member of the Committee.

But, that's I guess all I want to say at this point in time.

MR. MOHSENI: You need something. You

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have our commitment that you will see. The next product I think these guys are going to produce if the Commission directs us is the guidance and that draft guidance will come to you if that is and then examples of how it's probably used in the past and how it would be different. We can go even beyond the regular and provide you even with more information.

And if you can help us, all the power to you. I would love to hear any comments that would help us within our means, within our limits, within the reality of what NRC's rulemaking process is all about.

MEMBER SCHULTZ: I guess I -- I appreciate your comment, Aby. I think that what you've just said is a little bit different than the perspective that I had from what I had observed.

That is, you know, some of what you said is that the overarching approach is to capture the rationale that an experienced practitioner utilizes in framing an argument in support of or against a particular policy point forward and I think that's very important to capture before one even describes that we're going to have a set of methods to do that.

Because it's a bit of a different way to describe why

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one would move forward with this project.

And the way you described it it's a knowledge-based capture to assure someone that is unfamiliar with a process that has been used in the past when only qualitative information or a mix of information, qualitative and quantitative has been available could move forward and develop a good supportive piece of documentation for a rationale to move forward. That's important to capture that.

The other question I had though is a comment that you made, Alysia, that you talked about everything that has been done, to look at other Federal agencies and see that they have, in fact, incorporated qualitative evaluation of factors and then you said, I thought at one point, but then we're not going to move forward and see how they have done that. We're not going to move forward with other agencies to develop this rationale of process going forward, but we're going to do it on our own. Is that --

MS. BONE: Oh, I'm sorry.

MEMBER SCHULTZ: -- wrong or --

MS. BONE: On that, I may --

MEMBER SCHULTZ: Yes.

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MS. BONE: -- did not mean to give that impression at all.

MEMBER SCHULTZ: In other words, is the cooperation continuing? If you were to move forward, would the cooperation with other agencies continue?

MS. BONE: Absolutely. I think that's something that we found key in all of our basic cost-benefit guidance is continued work with external stakeholders, members of the public, other Federal agencies, international bodies. That's something that has been of utmost importance to us and in this, you know, specific case as well.

So, I'm sorry. Did not mean to leave you with that impression. We definitely want to capitalize on lessons learned from other agencies and share our lessons learned as well.

MEMBER SCHULTZ: Okay. I just wanted to clarify that.

MS. BONE: So, I just --

MEMBER SCHULTZ: Thank you.

MS. BONE: And just to feed off something that you were talking about before, capturing the, you know, current state of best practice, lesson learned.

I think on a related subject to this, as we mentioned

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I think at the briefing on SECY-14-0002, one of the items or activities that our group is working on in parallel is a regulatory gap analysis and that came from the Commission direction on SECY-12-0110, the economic consequence SRM.

And so, one of the things that we're doing is we have subject matter experts who do this work for all of the offices in our Cost-Benefit Working Group and we're going through -- we have had a series of internal workshops, but we're systematically looking at similarities and differences in how we conduct cost-benefit practices and one of the subtitles is qualitatively considering benefits, qualitatively considering other factors within the analyses and so, that's one, you know, in parallel to this.

So, first, we wanted to make sure that this is the direction the Commission wanted us to go in with regard to their direction of seeking detailed Commission guidance on our use of qualitative factors.

So, that's in one avenue.

And in the other avenue, seeing what the best practices are across the agency right now. Seeing where we differ. To be able to develop the guidance with the most information we have and so,

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we're still in that process right now and so, it's a little off topic of this, but it's related in that we have the same subject-matter experts. It's sort of, you know, developing those lessons learned in key messages.

MR. SNODDERLY: This Subcommittee is scheduled to review the gap analysis work on October 16th.

CHAIRMAN RAY: And we are looking forward to it.

MS. BONE: We look forward to it as well.
Thank you.

CHAIRMAN RAY: Well, still I think it puzzles some of us why it took this long and this much debate and so on to reach the conclusion that yes, we should do something. But, not be able to say more than you are able to say now.

I'm sure it must be a subject of -- has a lot of pros and cons that are being debated.

MS. BONE: We did have a -- you know, a number of discussions within the working group, within our steering committee of, you know, starting from scratch, from the beginning of making sure we do have that bases for considering factors qualitatively and,

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you know, really we went a lot of different ends of the spectrum of where -- what direction we need to take this paper and, you know, how to kind of be as thorough as possible in our background and then really take a hard look on how we can improve our practices.

And, you know, acknowledging that I wish had more details for you today, but nonetheless, hearing your concerns and feedback has been very helpful. I've taken copious notes.

CHAIRMAN RAY: All right. Well, we're going to have a little discussion because of the need for us to reach some understanding as best we can at the Subcommittee level since we have limited time before the full Committee meeting after we're done here. But, we've been arguing with you and you're certainly welcome and expected you to stay.

All right. But, are there other questions that any of the Members have for our staff presenters?

MEMBER SKILLMAN: I do. Maybe more of a comment than a question. It seems to me that the turbulence is around what should the product look like.

Our PRA advocates were saying there's always data. Even if there's no data, that's data.

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So, there's always a quantitative approach that can be taken and that can be interwoven with the qualitative approach.

And as Dennis points out, there is the probabilistic and the deterministic kind of argument that one can get into.

What would be very helpful for me at least to be instead of trying to create the final product, create instead a model of what the final product would resolve.

Give you an example. This kind of got kicked off with the idea of filtered vents, but I think that there's another example that at least in my mind is more powerful and that is reviewing the impact of a fuel pool fire at Indian Point versus a fuel pool fire at a plant that's very isolated somewhere else in the country.

CHAIRMAN RAY: Palo Verde.

MEMBER SKILLMAN: So, if you take those two, I can get my mind wrapped around that very quickly because I understand the Metropolitan New York area. I also understand Palo Verde. You're in the middle of the vast wilderness.

One can say golly, I can understand the

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impact on the public, the impact on the land and so forth.

So, maybe a way, at least this would help me, would be for you to say here is an example of how our product will address a theoretical issue. Whether it's a fuel pool fire, an airplane crash, a security event, an earthquake, a flood, manmade flood, a manmade disaster, a terroristic event that none of us have yet imagined. A really bad one.

And then use, if you will, this model. Here's how we would approach this with this product that is going to respond to the SECY and then back from that to a much more populated mature product that you wish to communicate.

I'm saying maybe start small, make an example, say here's how it will work. Now, we'll mature this or grow this into a more integrated tool.

At least this one member would see it. I can understand that. Give me a couple of examples.

Then show how the more mature tool could be used. Because that would cause me to say okay, now, I understand how they're going to perhaps deal with the environment, the public, the infrastructure, the economy, other features that I haven't thought of

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that are very important in wrestling with the type of example that I believe you're trying to go after.

It kind of gets maybe to Harold's point. We need something to look at and maybe if we look at something that was relatively simple, that is the model for what the more mature product would be, that would help this member.

Thank you.

MS. BONE: Thank you.

CHAIRMAN RAY: Okay. If there's nothing more on that, like I say I --

MEMBER STETKAR: No, I have something.

CHAIRMAN RAY: All right. Please.

MEMBER STETKAR: What I'd like to come back to is this notion of, Aby, you mentioned capturing the knowledge and experience of the people who have been doing the work. I would challenge you that perhaps the people doing the work historically have not appreciated the importance of uncertainty and displaying that uncertainty to a decision maker. That the people doing the work in this agency tend not only to not try to address uncertainty, they actively try to not address uncertainty.

And I'll quote you something out of

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Enclosure 3 as a closing. Even if these are created methods, the NRC staff may find that it is still not possible to quantify some costs and benefits in the regulatory analysis with any accuracy. Their inclusion in the quantitative cost-benefit analysis may, in fact, be more misleading than helpful in such circumstances. Oh, I'm sorry. Period.

In such circumstances, the staff should include, one, sensitivity analysis around key variables, recommended; two, a qualitative evaluation of those costs and benefits that cannot be quantified.

Both of those statements point toward precise numerical values that can be compared to a precise black and white acceptance criteria.

No sensitivity analyses and if I can't even do that, some sort of qualitative assessment that comes up with yes, I did A and B and C and D and I assigned weights X and Y and Z and W and N and I came up with this and look it passes. Just barely in my qualitative assessment, but it passes.

I challenge you to think differently. To say that the entire process ought to emphasize uncertainty quantitatively if you can quantify it. If they're large, present it. If it's a funny looking

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distribution, present it as a funny looking distribution and explain why.

Qualitatively, if I assign weight to parameter X and you assign weight -- a different weight to the parameter, what difference does that make? What are our selective bases for assigning those weights? And does a difference make any difference? Now, in some cases, it doesn't. Some cases, it might. But, that's also a measure even in quantitative space of the uncertainty. The two equally informed people could assign these different weights.

Obviously, you have to justify why. You can't just say I assigned it because I thought it was a good number. It might get me a raise today. Intended.

And that's -- you know, from my perspective, the challenge is to not develop a methodology that yet reinforces this notion of I must have a precise value whether it's -- or a precise attribute, let's say, if I'm going to talk about qualitative assessment, that can be compared against a defined black and white success criterion and present that to the decision maker as if that's the real

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world.

MEMBER SCHULTZ: I think that's important.

Because the way that paragraph is structured, it would suggest that I've got a quantitative evaluation approach, but gee, if uncertainties are large, I'm not sure where I am. Therefore, I'm going to default to qualitative factors and that really is wrong. You do have good information associated with whatever quantitative model you've developed and if you combine that with uncertainties, that provides very good information.

If it leads one to conclude that because of that situation, you need to consider perhaps more heavily qualitative factors, that's okay.

But, you really have to structure that argument and you can't -- I think one of the things John is saying is you can't dismiss the quantitative approach just because the uncertainties are large. But, you have good information both in terms of the model as well as the uncertainties and you don't default to qualitative factors because of that situation.

MEMBER STETKAR: That situation alone.

MEMBER SCHULTZ: Alone. Exactly.

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MEMBER BROWN: Well, I would argue that you should never throw out any -- your qualitative evaluation just because you've come up with a nice quantitative evaluation that seems to meet your biases and you get the answers you want it to be. I always -- I mean came from a program that relied heavily on qualitative evaluations after we got detailed, detailed, super detailed analyses from two different laboratories competing with each other to make their points and we used --

CONSULTANT SHACK: You're a structuralist, Charlie.

MEMBER BROWN: Well, maybe I am, but it's -- the --

MEMBER STETKAR: But, the world is populated with both, Bill.

MEMBER BROWN: Yes, well, we appreciated all those, but you had to take those into consideration as well as "unintended consequences or unintended fallout" which -- and it's not uncertainties or this. It's just things you don't think about and people would throw out this, that and that and you had to go -- you had to go deal with those and the decision would frequently to well, gee,

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the qualitative approach really drove us and sometimes we pinged over on the quantitative side.

It's just I can't imagine having just one or the other and that's -- my concern was this whole thing was over-processing process. It just -- it's trying to become too script. Have a script. We'll follow the script. We'll get an answer and we'll eliminate people's biases. We'll make them transparent. That's not going to happen either from a practical standpoint.

I mean it's hard to object to trying to improve what you do. Okay. That's -- but, sometimes you can improve it so much that you never get an answer and --

MEMBER SCHULTZ: That's my concern.

MEMBER BROWN: Yes.

MEMBER BLEY: Or you delude yourself and I guess --

MEMBER BROWN: Yes. Oh, that's right. That's another. You convince yourself that you've got the answer, but you really don't.

CHAIRMAN RAY: That's the third drawback that I mentioned.

MEMBER BROWN: Yes.

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CHAIRMAN RAY: In this paper.

MEMBER BROWN: Yes. Absolutely.

MEMBER BLEY: I'd like one last shot, too, Harold, and I -- while I agree with you we can't give you specific comments until you have guidance.

Before you write the guidance, I think if you go back and look over this transcript, Mr. Mohseni eloquent soliloquies, and you look at what we said, you'll find they're not so far apart.

Then if dispassionately you pick up the SECY and read it, you might be surprised. I think it's trying to carve the world into such narrow pieces that the guidance you come out with could be the source that can lead you to be deceived and not taking advantage of the important judgments of the experienced people involved in considering the breadth of information that you have.

I look forward to seeing what you come up with.

CHAIRMAN RAY: Well, perhaps saying that the SECY illustrates the problem.

MEMBER BROWN: I've got an example that would be a good --

CHAIRMAN RAY: I'm sure it wasn't easy.

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MEMBER BROWN: May I make one other observation? I just -- this is an observation based on you can never quantify something like this would ever happen and it -- Aby, you made a long soliloquy of an explanation of X, Y and Z and you did not get one interruption. I had never observed that in six and half years for anybody putting together that long of a set of comments and not being interrupted by --

CONSULTANT SHACK: Because he didn't take a breath. If he had taken a breath somewhere, we'd have got him. Maybe that's the secret.

MEMBER BROWN: But, I wanted to make that just to say that we do have restraint every now and then and --

CONSULTANT SHACK: Don't credit us with restraint. Credit keeping going like a --

CHAIRMAN RAY: All right. What I'd like to do now then is close the record and take a break, but then implore everyone, at least all the Members of the Subcommittee and those others who are here, to return for a discussion meeting.

Objective of which -- let it run too long. The objective of which is to try and make it as practical as we can to get this piece of our workload

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in September done recognizing that we don't have all the Committee here, but we do have enough people that I think we can get -- provide some guidance for what we will present or recommend to the Committee after this presentation is again provided to the full Committee, but based upon what we heard today.

So, if we would come back please at 10 after 3:00. I'd ask you to spent maybe 20 minutes. I don't know. I'll take notes and try and use your input to make it possible for us to get this job done because we've got a lot more to do in September in addition.

Yes, we're done on the record because this is going to be an informal discussion among members.

(Whereupon, the above-entitled matter went off the record at 2:54 p.m.)

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Qualitative Consideration of Factors in the Development of Regulatory Analyses and Backfit Analyses

ACRS Subcommittee Meeting - CLOSED

August 19, 2014

Purpose/Outline

- Purpose
 - Provide an overview of SECY-14-XXXX, “Qualitative Consideration of Factors in the Development of Regulatory Analyses and Backfit Analyses.”
- Outline
 - Overview and Status
 - Background
 - Qualitative Consideration of Factors by the NRC
 - Federal and International Agencies
 - Scenarios Involving Qualitative Consideration of Factors
 - Conclusions
 - Staff’s Proposal
 - References

Overview and Status

- Staff submitted SECY-14-XXXX, “Qualitative Consideration of Factors in the Development of Regulatory Analyses and Backfit Analyses,” to the Commission on August 14, 2014.
- Notation Vote SECY paper with four enclosures
 - Seeking Commission approval of staff’s proposal
- ACRS Full Committee meeting scheduled for September 4.

Background

- SRM-SECY-12-0157 directed the staff to “seek detailed Commission guidance regarding the use of qualitative factors [in regulatory analyses and backfit analyses] in a future notation voting paper”
 - Scope of this paper includes regulatory analysis and backfit analysis for all NRC regulated activities
- Context
 - Part of staff’s plan for updating cost-benefit guidance, SECY-14-0002
 - Linked to SECY-13-0132 (NTTF Recommendation 1) and RMRF due to defense-in-depth
 - Public Meeting on Qualitative Consideration of Factors held in May 2014

Qualitative Consideration of Factors by the NRC

- Staff qualitatively considers factors in regulatory analyses and backfit analyses for various reasons
 - No commonly accepted quantitative measure
 - Lack of quantitative methodology
 - Lack of quantitative data
- Current practice consistent with NRC guidance and Commission direction
 - NUREG/BR-0058, Revision 4, “Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission”
 - SECY-77-388A, “Value-Impact Guidelines” instructed to quantify factors and qualitatively consider factors
 - SRM-SECY-93-086 allowed for qualitative consideration of factors for backfit analyses within the “substantial increase” criterion

Qualitative Consideration of Factors by the NRC *cont.*

- **NRC Risk-Informed Decisions**
 - Commission Safety goals and PRA Policy Statements discuss importance of qualitatively considering factors
 - Reg. Guide 1.174 notes decisions are expected to be made in “an integrated fashion”
- **Adequate Protection Determinations**
 - Limited to public health and safety and common defense and security matters; determined at the Commission’s discretion
 - Only related quantitative measure is the power reactor safety goal surrogates to the quantitative health objectives
- **Cost-Justified Substantial Safety Enhancements**
 - NUREG-1409 states that the backfitting rule does not require a strict quantitative analysis

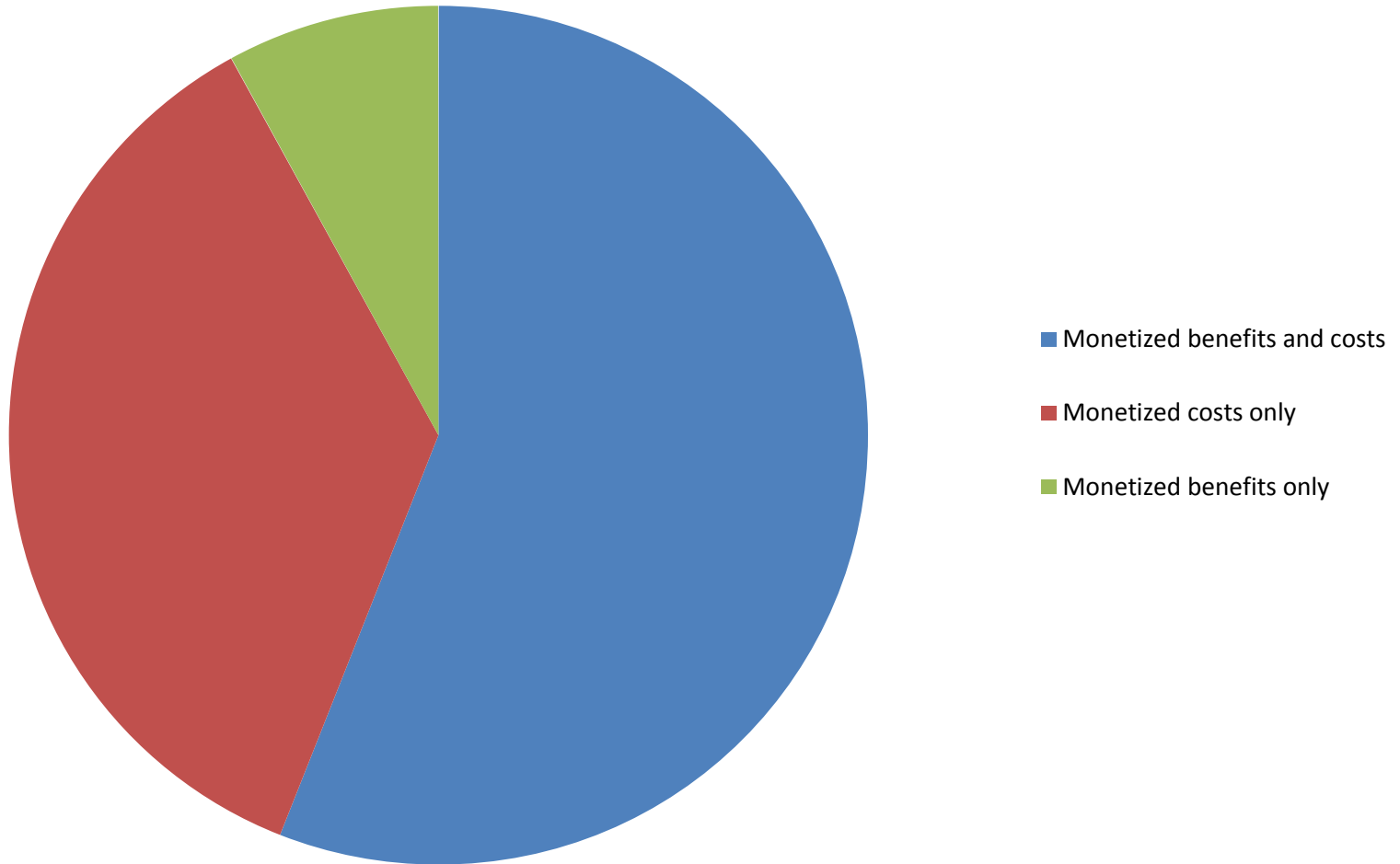
Qualitative Consideration of Factors by the NRC *cont.*

- Enclosure 1 of the SECY paper provides a list of past NRC regulatory actions that rely upon the qualitative consideration of factors
- Examples of factors that are difficult to monetize
 - Defense in depth (DID)
 - Increased security capabilities
 - Improved state of knowledge
 - Increased public confidence
 - Increased regulatory effectiveness

Federal and International Agencies

- Documents that require or recommend that federal agencies qualitatively consider factors
 - Executive Order (EO) 12866, “Regulatory Planning and Review”
 - Office of Management and Budget (OMB) Circular A-4, “Regulatory Guidance”
 - Office of Information and Regulatory Affairs (OIRA), “Regulatory Impact Analysis: A Primer”
- Importance of qualitative considerations is recognized internationally
 - OECD/NEA report, “Methodologies for Assessing the Economic Consequences of Nuclear Reactor Accidents,” April 2000, discusses importance of qualitative considerations of factors

Federal and International Agencies *cont.*



Scenarios Involving Qualitative Consideration

- Scenario A:
 - Benefits cannot be quantified and are presented only qualitatively
 - Costs are quantified
 - Past application to security-related and nonpower reactor regulatory actions
- Scenario B:
 - Some benefits can be quantified, others qualitatively considered
 - Costs are quantified
 - The net benefit of the quantitative analysis is **positive**

Scenarios Involving Qualitative Considerations

- Scenario C:
 - Some benefits can be quantified, others qualitatively considered
 - Costs quantified
 - The net benefit of the quantitative analysis is **negative**; qualitative considerations support the regulatory action
- Scenario D:
 - Some benefits can be quantified, others qualitatively considered
 - Costs are quantified
 - The staff identifies the qualitatively considered factors, but does not include them when forming a recommendation

Conclusions

- Qualitative consideration of factors is important to understanding the overall impacts of a regulatory action
- Aligned with other federal and international agencies' practices
- NRC's current framework for considering qualitative consideration of factors is sound
- Lack of specific guidance has led to a perception that qualitative consideration of factors can be arbitrarily weighted against quantitative consideration of factors
- The staff finds that developing guidance clarifying the potential tools available to analysis would enhance the transparency and consistency of the regulatory process

Staff's Proposal

- Update cost-benefit guidance to include a set of methods that could be used for the qualitative consideration of factors within a cost-benefit analysis for regulatory analyses and backfit analyses
- Methods should be consistent with the PRA policy statement as characterized in Reg. Guide 1.174
- Regulatory analyses and backfit analyses decision rationale should include
 - Describing qualitative evaluation of factors
 - Significance of each factor
 - How each factor contributes to the integrated decisionmaking process
- If Commission approved, guidance would be developed as part of overall plan for updating cost-benefit guidance

References

- EO 12866, 58 FR 51735 (October 4, 1993) and http://www.whitehouse.gov/omb/inforeg_riaguide/
- May 28, 2014 Public Meeting Summary ML14156A024
- NRC policy statements available at <http://www.nrc.gov/reading-rm/doc-collections/commission/policy/>
- NUREG/BR-0184 available at ML050190193
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- NUREG-1409 available at ML032230247
- NUREG-1530 available at ML063470485
- OMB Circular A-4, available at ML11231A834
- OIRA Regulatory Analysis Primer,
http://www.whitehouse.gov/sites/default/files/omb/inforeg/regpol/circular-a-4_regulatory-impact-analysis-a-primer.pdf
- Regulatory Guide 1.174 available at ML100910006

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- SECY-77-388A available at ML12234B122
- SRM-SECY-93-086 (non-public)
- SECY-12-0110 available at ML12173A478
- SECY-12-0157 available at ML12345A030
- SRM-SECY-12-0110 available at ML13079A055
- SRM-SECY-12-0157 available at ML13078A017
- SRM-SECY-13-0132 available at ML14139A104