UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BRIEFING ON READINESS FOR NEW PLANT
APPLICATIONS AND CONSTRUCTION

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PUBLIC MEETING

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Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, July 19, 2001

The Commission met in open session, pursuant to notice, at 1:30 p.m., the Honorable RICHARD A. MESERVE, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:
RICHARD A. MESERVE, Chairman of the Commission
GRETA J. DICUS, Member of the Commission
JEFFREY S. MERRIFIELD, Member of the Commission
EDWARD McGAFFIGAN, JR., Member of the Commission

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:
ANNETTE L. VIETTI-COOK, Secretary
KAREN D. CYR, General Counsel
PANEL 1
DR. WILLIAM TRAVERS, EDO
MR. WILLIAM BORCHARDT, Associate Director, Inspection & Programs, NRR
DR. ASHOK THADANI, Director, RES
DR. RICHARD BARRETT, Acting Director, Future Licensing Org., NRR
MR. THOMAS KING, Director, Div. of Risk Analysis & Applications, RES
MR. JOSEPH GIITTER, NMSS
PANEL 2
MR. MARVIN FERTEL, Sr. VP, Business Ops, NEI
MR. JAMES MUNTZ, VP Nuclear Project, Exelon
MR. EUGENE GRECHECK, VP Nuclear Support Services, Dominion Energy, Inc.
DR. REGIS MATZIE, Sr VP, Nuclear Systems, Westinghouse
MR. JOHN REDDING, Manager, Marketing & Public Affairs, GE Nuclear Energy
MR. WILLIAM MAGWOOD, Director, Nuclear Energy, Science & Technology, DOE
DR. EDWIN LYMAN, Scientific Director, Nuclear Control Institute

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P R O C E E D I N G S

(10:30 a.m.)

CHAIRMAN MESERVE: Good afternoon. On behalf of the Commission, I'd like to welcome you to today's briefing regarding New Plant Applications and Construction.

A few years ago, any suggestion that the NRC would need to prepare for possible deployment of new nuclear plants would probably have been greeted with disbelief, to put it mildly. However, in the past year or so, a number of factors -- economic, technical, political -- have come together to cause serious consideration of the construction of new nuclear plants within the next few years. And if new nuclear plants are to be proposed, the NRC must be ready to perform comprehensive licensing reviews and, if licenses are issued, to oversee construction and operations.

The purpose of this meeting is twofold. First, we will hear from the NRC staff about the Agency's activities to assess our capabilities and to prepare for the possibility of activities in this area. Second, we will hear from NRC stakeholders, not only from the nuclear power industry but from the Department of Energy and a public interest group, about these same issues. We very much look forward to this meeting this afternoon.

Let me turn to my colleagues and see if they have a statement.

COMMISSIONER MERRIFIELD: Mr. Chairman, I would make one statement. I appreciate the comments about the increased attention that this issue has gotten over the last year. I would note, however, I think that is a recognition of work that our staff and previous Commissions have conducted over a long period of time. The changes in our regulatory process, the allowances for reducing our regulatory burden, more transparency, more public confidence in what we're doing, and our ability to already have three licensed reactor designs are a lot of work already over the dam, so to speak, so while I agree with you that within the last year we've had a lot of attention on this, that's because of all the work we've been doing for a long time. Thank you.

CHAIRMAN MESERVE: If there are no further comments, Dr. Travers, you may proceed.

DR. TRAVERS: Thank you, Mr. Chairman. We are certainly glad to be here to brief you on the staff's activities relative to potential for future licensing and inspection readiness.

It has been a while since we were in the midst of any significant activities in this arena. We don't feel we're as rusty as some may think, however, but we do recognize a number of challenges that we need to be prudently prepared for moving forward.

I think you'll notice from the presentation today that there's been, and continues to be, a high level of interoffice coordination and cooperation. The Office of Nuclear Regulatory Research, the Office of Nuclear Reactor Regulation, and the Office of Nuclear Material Safety and Safeguards have been principally at least working closely to ensure our readiness for future licensing and inspection activities, and to ensure that we have, in fact, an integrated approach for resolving issues associated with new technologies and new licensing projects, should they occur.

There is a team approach, we think, which is demonstrating itself in the meetings that we're conducting with industry, upcoming workshops, training, and even some international cooperative efforts. The team from the Program Offices have also been working with the Regions and with our Office of Human Resources, and with the Office of the General Counsel in reviewing some of the policy issues that are attendant at this time to assessing our readiness.

Communications will obviously be an important factor, and the principal offices have established a joint communication plan to ensure that we in fact have good communications both internal and external to the agency. The offices have worked together to present information at the recently held ACRS workshop in June, and we have plans to hold internal and external stakeholder workshops next week. Based on the feedback from these workshops, we would expect to continue that sort of dialogue on specific technical issues.

As directed in the Commission's February 13, 2001 Staff Requirements Memo, we have been working closely -- we have worked with industry to encourage as much information as we can get on the details of the timing and the scope and extent of which some of these activities may occur so that we can plan prudently and budget for without disrupting some of the other important initiatives that the Agency faces. And, certainly, I'd like to emphasize how important to your next panel this information is for our plans.

With me at the table -- and I'll start at my far left -- is Joe Giitter, from the Office of Nuclear Material Safety and Safeguards. We have Rich Barrett and Bill Borchardt from the Offices of Nuclear Reactor Regulation, and Ashok Thadani and Tom King, from the Office of Nuclear Regulatory Research. And with that, let me turn over the briefing to Bill Borchardt.

MR. BORCHARDT: Good afternoon. Slide 2, please.

(Slide)

I'll be covering the current status of activities requested in the Commission's February SRM. This will include future licensing and inspection readiness assessment, staffing, policy issues, regulatory infrastructure, current activities, and the challenges we see going forward. Following my presentation, Tom King will discuss pre-application activities and technology challenges.

The staff fully expects to be prepared to carry out our review and inspection responsibilities for early site permit, design certification review and/or combined license applications that are received within the next year. In fact, we're already actively engaged in several pre-application review activities.

Thanks to the work done in the '80s and early '90s, a regulatory structure is in place that will support the recent renewed interest in new plant construction. There is no doubt, however, that ultimate success will depend on effective communication between all stakeholders, high quality submittals on the parts of the applicants, and review discipline on the part of the staff. Slide 3, please.

(Slide)

The SRM of February directed the staff to assess its technical, licensing and inspection capabilities, and identify enhancements, if any, that would be necessary to ensure that the Agency can effectively carry out its responsibilities. In addition, the staff was directed to critically assess the regulatory infrastructure supporting both Parts 50 and 52, and identify where enhancements, if any, are necessary. The Commission further directed the staff to integrate the tasks identified during this effort with the various related activities that are underway, and provide the Commission with a schedule for completing these tasks. Slide 4.

(Slide)

As stated in our May 1st response, we established the Future Licensing and Inspection Readiness Assessment Interoffice Working Group to assess the ability of the NRC to support future applications that might be submitted under Parts 50 or 52. This group consisted of representatives from NRR, Research, NMSS, and the Office of General Counsel, and is also interfacing actively with the Regions, the Office of Human Resources, and other support offices.

The working group will provide an assessment of the areas shown on this slide to the Commission in September of this year. The areas covered will be postulated licensing scenarios for future application reviews, durations of the reviews that are linked to milestones, and resource estimates; the critical skills that must be available within the Agency or that can be accessed through contractual agreements to perform these reviews; the necessary interfaces within the staff as well as with the ACRS and external stakeholders; and any recommendations and follow-on activities.

Information from the industry regarding their plans and schedules is key to our ability to create these licensing scenarios and ultimately have the staff available to perform the work once it does arrive. Slide 5.

(Slide)

With respect to staffing, we have established a temporary organization within the Office of Nuclear Reactor Regulation called the Future Licensing Organization. It is composed of an SES Manager, Section Chief, and nine Project Managers, and one secretary. Its responsibilities include providing central points of contact within NRR for matters concerning future licensing efforts, managing certain related initiatives currently underway such as the AP-1000 Pre-Application Review and Rulemaking activities, coordinating efforts to perform a readiness assessment, interfacing with NEI working groups and other stakeholders. We have accomplished this new work by reprioritizing

work using the PBPM process.

We are now in the process of establishing a permanent organization which will be called the New Reactor Licensing Project Office. It will retain the same organizational structure and responsibilities of the Future Licensing Organization.

I'd like to acknowledge the efforts of Rich Barrett who until very recently served as the Director of the Future Licensing Organization until a permanent Director could be assigned. Rich has done an exceptional job of laying a very solid foundation for us to move forward on all of these projects and establishing the good communication paths with all of our stakeholders, and I'd like to thank him. He has recently been relieved of those duties by Jim Lyons, who will be the permanent Director of the new Licensing Organization.

The Office of Research has established the Advanced Reactor Group. This group is responsible for managing the advanced reactor technology, Generation IV, and non-lightwater reactor pre-application assessment work. The Special Projects Branch in the Fuel Cycle Safety and Safeguards Division is the primary point of contact within NMSS. Their role is to support future licensing efforts in the area of fuel fabrication, transportation, safeguards and waste storage and disposal, with focus on any unique technical or regulatory issues associated with non-lightwater reactor designs and increased enrichment levels. Slide 6, please.

(Slide)

Slides 6, 7 and 8 list a number of policy issues that are affected by the structural changes within the industry and on the size, design and fabrication of new reactor designs. Industry has raised issues such as decommissioning funding assurance, antitrust reviews, and financial qualifications as those that are burdensome and could challenge the economic viability of merchant plants.

(Slide)

Slide 7 shows the impact of the modular or small plant issues, including Price-Anderson protection, the number of licenses that would be issued from multi-module type of designs such as the PBMR, operator staffing issues, and NRC annual fees. (Slide)

Slide 8 shows two other issues, decommissioning funding formula and uranium fuel cycle for gas reactors, that are regulations that will need to be addressed for non-lightwater reactor designs. Slide 9, please.

(Slide)

In addition to the assessment of the staff's capabilities and the regulatory infrastructure, the February 13th Staff Requirements Memorandum directed the staff to integrate these tasks with related activities that are currently underway. I will briefing summarize the status of some of these activities -- Early Site Permits, Construction Inspection Program, rulemaking, and stakeholder interactions. Mr. King will also provide the status of other activities such as the pre-application reviews that are currently underway later in the briefing. Slide 10.

(Slide)

We've been meeting with the NEI Task Group in preparation for an early site permit application. In addition to the three parts of the review -- site safety, environmental and emergency planning -- the staff will need to begin public meetings and site characteristic studies nine to twelve months before an application. The staff will need information regarding industry's plans early not only to conduct the reviews, but also to plan and prioritize our work and resource needs. Slide 11.

(Slide)

In conjunction with our assessments, we've begun to look at what it will take to reactivate the Construction Inspection Program. This effort will include review and revisions of applicable inspection manual chapters and development of associated inspection guidance as well as the related training. We will take into account the need for inspection and plant components and modules at fabrication sites. The Inspection Program will also be updated to accommodate the provisions of Part 52 including the verification of ITAAC. We've been working closely with the Regions on this activity, and it will be covered in the Future Licensing and Inspection Readiness Assessment.

Since the May paper, additional information from the industry has highlighted the need for additional resources sooner rather than later to revise the Construction Inspection Program. In the May 25th letter, Exelon stated that it intends to provide the staff with a Combined License Application late in 2002 or early 2003 for the Pebble Bed Module Reactor. This new information requires us to expedite updating the inspection manual chapters and the detailed inspection procedures. This, again, highlights the importance of coordinating the efforts of the industry and the industry's plans with our resource projections.

On May 3rd, representatives from Energy Northwest briefed the staff on a viability study that it had commissioned to determine if the Washington Nuclear Project No. 1 project completion is feasible and cost-effective. The study is expected to be completed in August of this year, but the licensee stated that a final decision is not likely to be made for an additional three to 18 months.

The licensee requested that the NRC extend the expiration of the construction permit from June 1st of this year until June 1st of 2011. That extension request is currently under review by the staff.

The staff issued a notice in the Federal Register recently seeking public comment on the need for and scope of ITAAC, Inspection Test Analyses and Acceptance Criteria, for programmatic areas. Additional actions will be taken following the receipt and evaluation of those comments. Slide 12.

(Slide)

With respect to the regulatory infrastructure, the staff is currently involved in a number of ongoing activities. These include an update to Part 52 to incorporate the lessons learned from the previous design certification rulemakings. While this update will improve the rule, the current Part 52 is adequate to proceed with review activities. Additional rulemakings involve amending Part 51, Tables S-3 and S-4, to address the higher enrichment and burnup, and to incorporate changes in the expected environmental impacts from nuclear fuel cycle. Also, a rulemaking on alternative site reviews to clarify our expectations on what should be considered when performing these reviews given the changes due to the electric deregulation is

also being considered. Development of these rulemaking plans is in progress. Slide 13.

(Slide)

I'd like to mention one final area that the staff has devoted resources to, and that has been the area of public interaction. We have established a Web Page for future licensing activities, and we are having our first public workshop next week, July 25th, beginning at 9:00 in the morning, and there will also be an evening session, and then again on July 26th from 9:00 to 1:00. This workshop will cover a wide range of topics for new licensing activities. We will also have additional workshops. as needed, to focus on specific topics. We have been providing time for the public to comment during meetings with the industry that we've had to date and, similarly, we have been aggressively working on communication with our internal stakeholders through internal meetings and workshops.

(Slide)

Slide 14 shows some of the major challenges. Clearly, hiring and maintaining critical skills will be an obvious challenge to the staff, not unique to this area, but very important, nonetheless. From the industry, as we've stated earlier, we need early and accurate scheduler information, high quality submittals and timely responses to requests for information. Our budget and resource planning can only be as good as our understanding of the applicant's planned activities and submittals.

We're aware of the House and Senate actions to appropriate an additional $10 million in support of new reactor licensing activities. We're in the process of evaluating how to best internally allocate the supplemental funding for fiscal year '02. The fiscal year '03 resource estimates for future licensing activities were included in the budget submitted to the Commission earlier this summer.

Finally, while we have some historical documents to build upon -- for example, a 1996 report on the Construction Inspection Program -- we have lessons learned from other successful processes to build on, such as license renewal, and are currently making enhancements to some of our processes, such as the rulemaking activities to amend Part 52. Enhancements to the processes will be iterative in that many of the processes within this Part 52 area have never been exercised before. We have had design certification rules, but we have not done an early site permit nor done a combined license review under the new Part 52.

To address these challenges, the staff is working with the Office of Human Resources and all other Program Offices to identify and hire resources to meet our critical skill needs. We will continue to interact with stakeholders to ensure that the staff has a clear understanding of upcoming application plans to establish the best resource estimates.

As stated earlier, the staff will continue to develop enhancements to the processes. We will inform the Commission of the results of its readiness assessment and those recommendations when the assessment is completed this fall. At that time, we will recommend appropriate activities, including refined schedules and resource estimates that are necessary to address the recommendations in that report.

Tom King will now continue the briefing.

MR. KING: Thanks, Bill. As Bill mentioned, I want to focus on the technical considerations that affect the ratings assessment, including key assumptions and potential policy issues that may emerge. A key part of the ratings assessment is to understand the technology, the designs, the safety issues, and the future plans of potential applicants.

(Slide)

In this regard, there are activities underway, as shown on Slide 15, that are providing useful input to the assessment. As well, these activities are also going to help facilitate the review if an actual application is received, by trying to identify and address up front some of the major issues that need to be resolved.

Quickly, the activities underway today are there's an AP-1000 pre-application review underway. We expect it to be complete in early calendar year 2002. The goal was to identify what are the issues associated with scaling up from AP-600 to AP-1000, and what are the paths to resolution of those issues. There's a possible -- we understand it's possible Westinghouse may decide to submit a design certification application for AP-1000 sometime in 2002. Likewise, there's a pre-application activity underway on the Pebble Bed Modular Reactor. We expect those to be complete in October of next year. Again, like AP-1000, they are directed toward identifying the issues and potential paths to the resolution.

As Bill mentioned, it's possible that an application for a combined license for the first Pebble Bed Module may be submitted late calendar year 2002 or early 2003. Likewise, we have had preliminary discussions on the general atomics design Gas Turbine-Modular Helium Reactor and the Westinghouse lightwater reactor design IRIS. I forget what it stands for.

COMMISSIONER MERRIFIELD: International Reactor Isolated and Secure.

MR. KING: Again, it's possible that we may get a request on both of those designs to initiate pre-application work in 2002. We've also been taking advantage of our international partners who have experience -- in some cases, more experience than we do -- in some of these areas.

As you recall, Ashok and I went to South Africa earlier this year to understand on the Pebble Bed Modular Reactor, the status of their technology and development. We've had discussions with the Regulator in the United Kingdom regarding their experience with their Advanced Gas Reactors, which are High-Temperature Graphite Moderated Reactors. We're planning a trip to Germany to get their experience on HTGRs, and we're initiating contacts with Japan and China to learn from their experience also in the HTGR area. Slide 16.

(Slide)

COMMISSIONER MERRIFIELD: If I might -- I corrected you and I may have corrected you wrong. For the record, it's International Reactor Innovative and Secure.

MR. KING: Thank you. On Slide 16, I wanted to point out that from the interactions we've had to date, it's clear that many challenges await us in the technical area, which need to be considered in the readiness assessment. Basically, what we're doing in the readiness assessment is looking

at three factors. One, we're factoring in our understanding of the technology which is necessary to identify the skills and infrastructure needs. We're including in the readiness assessment a portion that deals with adding resources and infrastructure to be able to independently confirm the safety of the designs. We think that's important because that's related to being able to help us ask the right questions to give us information on which to judge the applicant's response, and to decide and set the appropriate acceptance criteria, and all of that is related to developing and maintaining the necessary skills -- in other words, what skills do we need to develop, and what's the best way to obtain them. And I'm going to discuss each of these in the next three slides.

(Slide)

Slide 17, on technology, it's clear that in many cases the technology is going to be different that currently operating plants. In some cases, they will be non-lightwater reactor designs, there will be new materials, new phenomena to address, new operating regimes.

It's also clear that the safety, in many cases, may be accomplished in nontraditional ways. There's going to be greater emphasis on prevention versus mitigation of accidents. There are going to be longer response times, less reliance on operation action, inherent safety characteristics built into the design. All the future designs are being advertised as having one or more of these characteristics, and we need to understand the basis for those and be able to make judgments on whether we agree or disagree with what's being proposed. And we think these are certainly going to lead to some policy and technical issues which I'll get to later.

In some cases, the new technology may also be applicable to current plants -- advanced fuels, advance instrumentation and control systems, advanced nondestructive examination systems, for example.

(Slide)

Slide 18, the independent capability portion. As I mentioned, claims are being made for improved safety in these new designs, and we need to be able to assess those claims. Historically, many of our regulatory decisions have been supported by independent confirmatory analysis and data. AP-600 review was a recent example where as a result of the staff's work it uncovered a potential design issue in AP-600 that subsequently was fixed.

We believe future plant licensing also would have the benefit of such capability and independent review. And we recognize that development of this independent capability takes time and resources. You need to understand the issues and phenomena, you need to be able to model those, develop and assess analytical tools, and perhaps provide some experimental confirmation or exploration in certain areas, and we think this aspect needs to be part of the readiness assessment. Slide 19.

(Slide)

Given the technology and given the desire to have some independent capability that leads to what are the skills that we need, we think certainly new skills are going to be required. Examples are graphite technology, HTGR fuel technology, there will be new materials -- different coolants, for example -- and the readiness assessment must address getting those skills, both how many and what types, as well as what's the best way to obtain -- is it hiring, is it using contractors, is it using training, using some other method? Slide 20.

(Slide)

There are certain key assumptions that are going into the readiness assessment, and I wanted to just highlight some of the major ones. Industry plans and schedules. The May 1st memorandum that we sent the Commission that gave a preliminary estimate of our needs was based upon industry plans and schedules, as best we knew them at that time, but these are a moving target.

Slide 24 contains a summary of the schedules that we assumed in the May 1st memorandum and shows where some changes have occurred at the time we put these Vu-graphs together. I'm informed now that even Slide 24 is out-of-date. Just in the past week it has changed, so I just want to emphasize that is a moving target.

In doing the readiness assessment, we will certainly take the best information available at the time in the report that comes out this fall.

High quality applications. We're assuming in putting together the rating assessment resource needs that if we receive high quality applications supported by sufficient R&D;, and that we're not planning in the schedules any hold-ups due to lack of information. We think the pre-application reviews will certainly help in that regard because they will provide our expectations and our needs in that area.

As I mentioned, NRC independent review capability is going to be part of the readiness assessment. It will include resources for that, although we're still, as part of preparing the readiness assessment, looking at the scope and nature of exactly what those resources will be, but that will be part of the readiness assessment.

And, finally, the case-by-case application of 10 CFR. In the past when we've reviewed reactors that were different than current generation lightwater reactors, we've taken the existing body of regulations, we've gone through and we've determined which ones are applicable, which ones aren't, and where there may be gaps, and how to fill those gaps, recognizing that many of the regulations today are LWR-oriented. In the near-term, in the readiness assessment, we're probably going to be doing that same process, that same procedure, so that will be built into what the resource needs are and the schedules, but this is going to lead to a larger issue which is should we do something different in the future, and I'll get to that as we get to another slide.

(Slide)

Potential areas for policy issues -- I call this "potential" because we're still in the pre-application phase, we're still learning, we're still trying to formulate these issues, so I just wanted to highlight a few of the more major things that will probably end up being brought to the Commission as policy issues, just to give you an idea of the scope and nature of the things that are out there.

Bill had covered the legal and financial issues that have come out of the review so far, and I wanted to focus on the technical and what I call "institutional" issues.

Under technical, as I mentioned before, achievement of safety is done in nontraditional ways -- for example, longer response times, greater reliance on prevention versus mitigation. That's going to lead certainly to features in future plants that are not in current plants, and perhaps a lack of features in future plants that are not in current plants, and we expect issues like do we need to have high-pressure, leak-tight containment buildings on future reactors that's going to be a policy issue that will come to the Commission. The size of the emergency planning zone is another potential issue that would probably be brought to the Commission. The whole question of in the case of the HTGR where fuel quality is such an integral part of the safety case, how should we go about factoring that into a license, whether it's a combined license or a design certification license? Should it be an integral part of the design certification, for example.

Another technical issue, risk-informed, performance-based approach and criteria. By that, I mean -- I'll use the PBMR as an example -- what they are proposing is using risk criteria and using some deterministic acceptance criteria, coming up with a process by which you'd select design basis accidents, identify the safety classification of systems that would apply to the PBMR. We believe this process and the criteria that are used have a policy nature to them, and we'll probably be bringing those to the Commission for consideration.

Institutional issues, as I mentioned, we're doing case-by-case application of the current regulations today. Should we be considering a different way to license future plants? NEI is preparing a white paper on this subject, you'll probably hear about it when the next panel gets up here. But what we're doing in the readiness assessment is we're considering this as an important issue. We're going to discuss it to some extent in the readiness assessment, but we're also considering bringing forward a separate paper on this topic with some options, and get Commission feedback and guidance on whether we want to proceed developing such a clean sheet of paper approach for future plants, technology neutral perhaps.

And infrastructure needs. As I mentioned, we're going to plan in the readiness assessment to go forward and put in resources to develop this independent capability. We'll keep the Commission informed of any issues that come out of that as well as the scope and nature of what we have in mind. That's just an example of some of the things that are coming down the road.

(Slide)

Slide 22 and 23 are -- what we tried to do there was put down the milestones that are going to be coming to the Commission over the next 12 to 15 months, and these will either be information items or items of a policy nature. I'm not going to go through all of these, but I just want to point out, for example, Bill's presentation mentioned legal and financial issues. We're planning a paper to the Commission in November on the policy aspects of those issues. This Pebble Bed licensing approach that I just mentioned, we're also planning a paper to the Commission in November on that.

(Slide)

On Slide 23, on the Pebble Bed technical issues itself, a paper in April of next year and September of next year, one on technical issues and one on policy issues. So there are a number of things that are going to cross your desk over the next 12 to 15 months that we just wanted to try and point out here.

With that, I think Bill Travers wanted to make some closing remarks.

DR. TRAVERS: Just one quick one. One element of our program that we think is going to be particularly valuable is the fact that we've negotiated with the Department of Energy a reimbursable research agreement to address a number of generic technical issues related to gas technology, and may Bill Magwood will address some of that with you this afternoon.

Ashok, did you want to make a quick comment?

DR. THADANI: I just also wanted to acknowledge Rich Barrett's contribution. He brought a great deal of intellectual thinking to these early issues, and also the exceptional interaction that's taken place between the offices, I want to acknowledge that immense contribution.

DR. TRAVERS: And that completes our presentation, Mr. Chairman.

CHAIRMAN MESERVE: I'd like to thank you. Obviously, this briefing, given the wide range of activities, could only give us a sampling of what might be headed in our direction. It's a little intimidating, I think, but in any event it's exciting, and thank you for very much for the presentation.

Commissioner Merrifield, it's your turn to go first.

COMMISSIONER MERRIFIELD: Thank you, Mr. Chairman, I appreciate that. The first question I have for Dr. Travers and his staff, the overview that was talked about referenced the February Staff Requirements Memorandum, of course, which came out of the comment I wrote last October. The initial response to that was in May, which is relatively high level and gave the Commission some overview of what future plant orders or restarts would require relative to resources and staffing. You further indicated that in September we're going to get a further more detailed update as to the meaning of that.

I guess I'm interested in you were articulating a little bit more carefully whether that would provide sufficient analysis from a budgetary standpoint and a staffing standpoint the Commission to see the various elements and initiatives industry might have underway and what that would require of us.

And as part of that, I also am personally cautious about a lot of this given the fact that even the assumptions that you have on page 24, which have been updated from May, have further changed this week. And I think all this plays into the recollection that there is quite a bit of tealeaf reading that goes along with this, and my own concern that we not get too far ahead of ourselves in overcommitting resources that ultimately must fall back on our licensees.

But my direct question is, what is that September memo going to look like and will it provide us the details necessary to make more of a project-by-project analysis?

MR. BORCHARDT: Well, it's our intent to give you a lot more detail than you've seen before and, frankly, a lot more detail than we have developed to date. We don't have a lot of answers to give you today, but it will develop what we think are the most likely scenarios and develop schedules for each of those scenarios, along with resource loadings for each of those.

And we will react to the best knowledge that we have at the time when we have to put the final touches on that document. So we're going to be looking at what critical staffing shortages we have in expertise areas, then look at what we think are the most likely scenarios, and then how we would go about accomplishing those with resource loadings and schedules associated with each.

COMMISSIONER MERRIFIELD: Great. On Slide 11, it talks about the reactivation of WNP-1. I'm just wondering if you could share some of the insights you have about what voids we may have to fill in our Construction Inspection Program.

MR. BORCHARDT: Well, for WNP-1, being as that's a Part 50 construction permit, we don't have some of the issues I was referring to earlier about verifying ITAAC, but neither have we done an inspection program or picked up a project in this stage before. So, frankly, we're going to be developing some new guidance to the Inspection staff, trying to rebaseline the Inspection Program, see what we can take credit for from what was done several years ago, and then take up a construction program that can lead forward to eventual decisions regarding an operating license. I think it's just the novelty of the issue that has us a little bit on edge right now.

COMMISSIONER MERRIFIELD: On Slide 23, you indicate you intend to make a recommendation on programmatic ITAACs in March of '02. I'm wondering if you could give an update in terms of ongoing activities and what could turn out to be, and what is, I think, a very important area going forward.

MR. BORCHARDT: Where we are in programmatic ITAAC now is we have a Federal Register Notice out to request comments and begin the exchange of views on that. We will then, as a result of that, prepare a Commission paper for our final policy decision on how we will deal with the subject of programmatic ITAAC. That's in the spring.

COMMISSIONER MERRIFIELD: That's a key issue and one obviously that's going to take a lot of careful effort on the part of the staff. This one is directed toward, I think, probably Steve Burns. In the next panel, Mr. Grecheck -- I hope I'm pronouncing that correctly -- indicates in his testimony that Dominion has identified no legal or procedural barrier or impediment to proceeding in a fashion which would accommodate the design certification early site permit and/or combined operating license processes proceeding in parallel, and I'm wondering if I could get your thoughts on that particular issue.

MR. BURNS: Yes. I think to answer the question, you really have to look at Part 52, and I'd start with the regulation on the combined license, 52.79, and what 52.79 does is it gives you an option. It says when you submit the application, that the application must either contain -- for example, let's just take the Early Site Permit -- either give you a reference to the Early Site Permit that you're referencing, or provide the information within the application that you would otherwise have.

Similarly, for design certification, you can either reference the FSAR of a final design, standardized design certification, or you can provide all the information that would otherwise be provided as part of the design cert.

What I don't think that regulation contemplates if that you have a hole that you then later fill because I would have some question to think about is whether, in effect, you actually have a docketable application for a combined operating license, if what you have is nothing but a hole and a promise to provide a future Early Site Permit or a future design certification.

I think in terms of the contemplation -- again, the rule does not preclude going in parallel in the sense that one can pursue various aspects of the trio of types of permits or licenses provided under Part 52. But when you come to the combined operating license, I think what it contemplates is the one of the two alternatives.

I guess I would add the one thing I think you'd have to ask yourself is -- and, again, going back to what was the purpose, what is the purpose of the Early Site Permit, or what is the purpose of the design certification? It is, in part, to provide issue resolution. Now, the design certification obviously might be used at a particular site in Virginia, it might be used for one in Maine, or California, wherever, and then it's adapted to a particular site. But, again, it's meant to provide issue resolution, and if you don't have in the COL an Early Site Permit or design cert, you don't have the issue resolution as to those matters. They are resolved, in a sense, in the context of the combined operating license, since that is a process that under Part 50 or under Part 52 you can proceed to.

So, the question is -- and I haven't had any interaction on this -- I'd be interested to know what is thought to be the advantage of doing that because, again -- I come back to the issue resolution -- you don't have it on those pieces when you're going with the combined operating license.

COMMISSIONER MERRIFIELD: Thank you very much, Mr. Chairman.

CHAIRMAN MESERVE: I've noticed that several of the slides make reference to the human capital issue, need to have skills and develop skills, I think that's obviously appropriate. I think it appears in five or six of the slides that you've given us today. And I think we all recognize that's a huge challenge, but it's one that isn't unique to this area in that we have, to a lesser degree, have that same problem across the Agency in terms of making sure that we have the capacity as the years go on to keep the competent, capable staff that we have today. And as you know, there's a major effort that we've had underway with the HR group to be able to deal with that issue. And I'm curious of the extent to which there's been some cross-fertilization between your activities and the Agency-wide activities, and you have made some skills that you need here that exist, but in unusual places in the Agency that you may not know about, and there may be some skills that you need to develop that we could use elsewhere, and that gives us some flexibility to deal the point that Commissioner Merrifield appropriately mentioned, that there is some uncertainty in this area. So, I'd like to have your thoughts on that.

MR. BORCHARDT: Well, we are working with HR on the -- in coordination with the Agency's overall staffing issues. And one of our first activities within the future licensing area is to send out a survey to the staff to identify where those -- what the needs are and where some of that expertise resides, even though they may not currently be filling a position that would use the expertise that we'll need for future licensing activities.

CHAIRMAN MESERVE: This is an integrated activity --

DR. TRAVERS: Yes. The only thing I'd add to that, as Bill

mentioned earlier in his presentation, there's also looking forward, we can look to see where we might contract some of this and perhaps in environmental review much the same as we are doing in license renewal. There are specific needs in gas technology reactors and some in the construction realm where we haven't been too active of late, and so we're looking to see if we can balance incorporating the need for staff resources versus the contracted route.

DR. THADANI: If I may add, it is indeed integrated with the HR approach, but we also happen to have some knowledge of some capability within the Agency, for example, in gas technology and so on, and we've been somewhat successful in getting that kind of capability into our organization, at least on a temporary basis, to help us through what we're doing now, but it is indeed integrated approach.

CHAIRMAN MESERVE: It seems to me that if we are confronted with a gas reactor, that we're going to have particular challenges in a variety of areas so different from what we're doing, and I'm -- it occurred to me as I was reading through the slides that there might be something more aggressive that we ought to do in an international area, in that we have a situation where the British have operating gas reactors. The Germans have experience at least with the fuels. The Chinese are interested in the Pebble Bed, working in a Pebble Bed --

DR. THADANI: They have an operating reactor, actually.

CHAIRMAN MESERVE: The South Africans have this interest. Russians, obviously, with General Atomics, are engaged. I've read something that the French are interested in gas reactors. We are all confronting a whole series of issues, and it does seem to me there is a lot of information that we would all need in common, and I wonder whether there's any thought been given that this is going to go forward whether there's some sort of more concerted international program that would reduce costs, leverage facilities in various countries, and get the information in a more timely fashion.

DR. THADANI: There are a number of ongoing activities. At Nuclear Energy Agency, they are planning to have a workshop on high-temperature, gas-cooled reactors early next year. A number of countries would be invited. I would certainly hope that many of the member countries in IAEA would also participate in that workshop. We're exploring ourselves the idea of going and talking to certain individuals that we know have extensive background in graphite gas technology. We're considering a number of options. One would be some sort of technical support to us in some capacity. We're even looking at some options where some individuals may be able to come and join us for periods of six months or so, particularly if they have had extensive experience in this technology. And, Mr. Chairman, my personal view is we almost have to do that because that's where a significant amount of capability is. So, we're looking at a lot of ways to help us move in a fairly effective manner.

CHAIRMAN MESERVE: You described -- I'm sure you're doing sensible things, but it seems sort of ad hoc, and if many of these countries are going to be confronting these types of reactors, maybe an integrated international program might be useful to consider, at least. This is not to suggest to design it right at this moment, but it occurred to me as I was reading the materials and saw that the French are also interested in gas reactors.

One of the issues that is apparent when I look through some of the presentations we're going to get in the second panel is that some of the individuals we're going to talk to are going to suggest time limits or time frames within which decisions are going to be expected. I saw with the Pebble Bed that there was an expectation of a combined operating license within 28 months, with an SER within 12 -- the AP-1000, if that goes forward, it would be with less than three years to complete that.

Has there been consultation with the staff on these schedules, and where are we in your thinking about those matters?

MR. BORCHARDT: Well, that's one of the areas that the readiness assessment is working on. We have had numerous meetings with a number of potential applicants over the last several months, that's how we've gotten some of the information that we're already aware of.

Frankly, we don't have enough information on our own review schedule to tell whether or not we can meet any of those. I mean, that's part of why we're doing this readiness assessment. So, it's really premature for me to make much of a statement regarding our capability to meet any particular milestone.

CHAIRMAN MESERVE: Well, obviously, let me just say, I'm sure for all the Commission the job will have to be done right rather than done fast, and so the staff has to bear that in mind. Commissioner Dicus.

COMMISSIONER DICUS: Thank you. Just as an aside before I get into some questions, sometimes I'm amused or taken back maybe by some of our acronyms, and "ESP" comes to mind -- Early Site Permits. I hope that our stakeholders, public and industrial and otherwise, don't think that maybe what we're doing here is extrasensory perception, but it may be given the uncertainties with our schedules.

CHAIRMAN MESERVE: It might come in handy.

COMMISSIONER DICUS: This question would go both to NRR as well as to Research, and it really has to do with what I think all of us so far have brought up, and I would imagine that Commissioner McGaffigan will lay in on this as well, and it's how we handle our resources with the uncertainties that we do have with schedules, with what we may have coming down the pike, and you've addressed this in your presentation as well, but the question that I have is to what extent do you feel that you've built in the flexibility to resource up or to resource down, depending upon what we get? Do you feel that you're prepared to do that, or are we still will have to work that out?

DR. TRAVERS: I'll just make a general comment. I think we've been, and are continuing to be, prudent in approach, recognizing that if things do take off we'll need to up source. At the same time, if you look at what we've done in both NRR and Research, which are sort of the principal offices with responsibilities in this area, we've in NRR started out with a temporary organization with temporary people, and have begun to move into a permanent or semi-permanent organization that's just been established. They contain about 12 people right now. The expectation is that we might need to be ready to increase that if things develop in the way -- a lot of what we're doing in thinking about contracting and working with HR is intended to put us in a good

position should that come into play a little bit more, but it is a very balancing act that we're in the midst of doing, you know, recognizing that we have to recover in the main all of our fees from licensees and, at the same time, carry out a number of very important initiatives that the Commission is vitally interested in, including licensure on power, you name it.

So, I think we've got a flexible approach, but it's likely to be challenging no matter what happens, I suspect.

COMMISSIONER DICUS: Okay. To follow-up on that just a little bit before you have a chance to answer, in a previous briefing when we were discussing human capital at some point, we brought up the fact that we may think we have Project A coming down the pike, but we've got to have particular skills to deal with that. I think you've identified what skills -- I think, in your Slide 4 you talk about critical skills needed, and we hire those skills, or we contract for them, and then Project A doesn't happen. So, it's just a caution on how that -- but you probably want to respond, I think you should maybe want to respond.

MR. BORCHARDT: Just to supplement what Dr. Travers said specific to NRR, I wanted to clarify that the Future Licensing Organization that's being permanently established now, is a project management organization. The vast majority of resources within NRR that will be dedicated -- or allocated, I should say -- to future reactor licensing activities will be matrixed to the technical staff within NRR.

So, should a new application not come in, those resources could be utilized for core work, and so it's only the project management function that's specific to future reactors.

DR. THADANI: Commissioner, first of all, indeed, the September paper is -- I hope, would provide additional information in this area, but I do want to note that the idea behind pre-application reviews is to try and get sufficient understanding of the technology and to lay out what needs to be done, what information needs to be collected, and we would have clearly a much better idea of cost and so on, I think, at that point.

Now, in terms of -- there are some additional benefits. Some of the technology issues in new designs would likely be applied in existing designs, particularly areas such as highly advanced digital technology control room designs and so on. So, it seems to me we would have to also bring that in as a measure for prioritizing where we ought to continue to work and perhaps where we ought to back off, those will be factors that we will build in in a planning consideration.

COMMISSIONER DICUS: Okay. On the critical skills needs for both NRR and Research, you mentioned what some of yours are. Have either one of you, or are you at the point where you can, given the fact we may not know for sure what walks in the door, prioritize what the most important skills are?

MR. BORCHARDT: I don't think we can, at this point, give you a firm list.

DR. THADANI: For us, for new technologies, we're going to have to pay extra attention -- Tom touched on graphite issues, gas, general gas technology issues -- but I want to emphasize in particular the high temperature material issues. I think those are -- I believe those are going to be very challenging issues for us.

And the other area where we are going to be paying more is going to be in the area of chemistry issues, which I think we are going to have to better understand as well.

COMMISSIONER DICUS: Okay. Thank you, Mr. Chairman.

CHAIRMAN MESERVE: Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: To follow up on a couple of questions that the Chairman asked, I'm recalling a hearing that he testified at where Senator Bingaman asked him a question about the amount of time it would take us to deal with an application. And the Chairman, I think very correctly, distinguished between an existing certified design at an existing site compared to a new technology. But I'm just going to test you guys.

If we were to get an Early Site Permit in three months, what would you recommend to us be the amount of time to be allocated for you to complete the process, the staff process -- not the hearing process that might be associated with it, but the staff process -- what would be a reasonable period of time if it's an existing site?

DR. TRAVERS: I was just going to ask you that question.

COMMISSIONER McGAFFIGAN: Okay.

MR. BORCHARDT: I think our very rough estimations are two to three years for an Early Site Permit. Given an existing site, it's clearly closer to two than three.

COMMISSIONER McGAFFIGAN: Why that long? What sort of issues might arise that didn't arise during the siting of the reactors that are already existent at that site?

MR. BORCHARDT: I don't know that there would be new reactors -- I mean, new issues. I think it's the passage of time, you know, issues of just how the environment may have changed in the vicinity of that plant since the original licensing activity.

COMMISSIONER McGAFFIGAN: Environmental issues that would have to be considered in an -- there's an Environmental Impact Statement that goes with an Early Site Permit?

MR. BORCHARDT: Right.

DR. TRAVERS: And since NEPA is an disclosure rule under law --

COMMISSIONER McGAFFIGAN: Right. Okay. So, basically this is driven -- your two to three year guesstimate is driven by the NEPA process, that it would take you a while to scope and do an EIS, a draft EIS, hold public meetings, deal with the comments to a final EIS, it's more driven by the EIS process than by -- is there a safety evaluation in a case of an Early Site Permit?

DR. THADANI: There are some safety issues that you have to consider and, again, they relate -- for example, seismic considerations. You have to build in whatever you have learned over the intervening years, and does that have any significance or not. So, you have to consider those facts.

MR. GIITTER: Back in '91, the staff -- at that time, DOE was proposing the staff look at what it would take to review a green site, and the staff developed a task force. In SECY 91-41, it outlines the steps that would be followed --

COMMISSIONER McGAFFIGAN: This is for a green site.

MR. GIITTER: For a green site, but we actually looked at a couple of different cases. One was a green site, and one was a site that had already been reviewed, you know, by the staff for a construction permit, and although the numbers may have changed since then, the process that the staff would have to go through in conducting an Early Site Permit is laid out in that SECY.

COMMISSIONER McGAFFIGAN: And what were the numbers just for disclosure, because I haven't read the '91 SECY, to be honest with you.

MR. GIITTER: For the maximum -- I believe it was 16 FTE total -- here we go -- for the green site, 24 FTE for the green site and I believe 16 for the site that had already been reviewed by the staff.

COMMISSIONER McGAFFIGAN: But how much time was it going to take?

MR. GIITTER: In the timeline we have in here -- and, again, there may have been some things that have changed since -- you know, in the last ten years, but we looked at two years from the date of submittal of the Early Site Permit application to the actual issuance of the Early Site Permit.

COMMISSIONER McGAFFIGAN: For either case, or for the existing case?

MR. GIITTER: I need to go back and look. I believe that was for the existing case.

COMMISSIONER McGAFFIGAN: Okay. Let me just ask the next question. This is interesting. If I come into you with an existing site, but I do -- I'm taking Mr. Burns' counsel earlier to Commissioner Merrifield into account -- I apply for the -- I come in with an application without an Early Site Permit, but with a certified design, how long is that going to take me -- because I'm now going to combine -- I mean, as I understand Mr. Burns, now part of my application is essentially all the material that would have been in the Early Site Permit, so I don't have the benefit of this two-year process that would have certified the site, but I'm anxious to get going and so I want -- I'll tell you what the third question is going to be, the third question is, if I have an Early Site Permit and a design cert, how long is it going to take me? I can then do arithmetic here.

DR. BARRETT: I can give you the arithmetic, but the question of whether these things can go on concurrently is a question for OGC. But our estimate is that if you have a design certification and an Early Site Permit, what you're basically doing is a review of the qualification of the licensee and the compatibility between the design certification and the site, and the estimates that we've made is that that would take about a year.

COMMISSIONER McGAFFIGAN: That would take a year. Okay. So now we're down to the middle on that I asked. If I come in and I don't have the Early Site Permit -- it's two years plus one year, it's three years through that process --

DR. BARRETT: If you can do them concurrently. It would be driven by the limiting case, which would be the two years for the Early Site limit.

COMMISSIONER McGAFFIGAN: But if I come in without the Early Site Permit, how long will that take? I have a certified design, one of the three certified designs, but I don't have an Early Site Permit because obviously nobody has one, but it's an existing site.

DR. BARRETT: If you can do the Early Site Permit and the combined operating license reviews concurrently and efficiently, then it would be limited by the amount of time needed to do the Early Site Permit, which would be the two years.

COMMISSIONER McGAFFIGAN: So that would -- if the reason we're doing it concurrently is only because we're having to consider both within the same context, it isn't -- you're saying you're driven -- the siting issues drive the process, if you have a certified design, is what I interpret your answer to say. I guess Mr. Burns may want to say something.

MR. BURNS: I think your hypothetical, one, it said in terms of the review times -- I'll speak as a lawyer -- I'm not going to go there. We're accused of that all the time on both -- let me suggest, in this scenario, the scenario you posit, that it seems to me what -- and the staff may be able to say review time for this, if you reference certified design, other than the fact you've got to look at some of the site-specific things -- for example, the rule speaks specifically to the service water intake and the ultimate heat sink -- and then you have to deal with the integration portions of the design. Otherwise, your safety review -- you know, in theory, the safety review for that design is done, okay? So, it seems to me when you're focusing on that aspect under this scenario where really the advantage you've taken under the Part 52 process, the design cert, that's where you conceivably save some time.

Now, on the siting one, I think it's kind of interesting. What your hypothetical was is you don't have an Early Site Permit, but what you do have is an existing site.

COMMISSIONER McGAFFIGAN: And a certified --

MR. BURNS: Well, let's just deal with the site. What you do -- I think in that circumstance, although I think what the applicant has to provide you is the information required for the site. You don't have to -- you know, you can't ignore the reality that you have a site there, you had one for which at some point in time findings have been made by this Agency. The regulations would require, for example, with respect to -- let's talk about a site maybe that was, you know, licensed and had an EIS in the mid-'70s. That EIS is not -- just because it's old doesn't mean it's not any good, but it does need under our regulations to be supplemented or it would have to be a supplement to the original EIS or a supplemental EIS, and even CEQ regulations account for that kind of tiering.

So, you may be looking at updating on the environmental side that aspect of the review. You're probably not going to -- my guess would be you're not going to save a lot of time on the environmental review because you have to go through that process. But on the other side, the other aspect of the siting thing, I think the interesting question is, what is the baseline? And from that baseline, what has changed? And I think you have to look at what has changed since, let's say, 1975, and now, and in terms of the requirement. Recall, we do have, for example -- without sort of opening this up broader -- we do have some plants at some site that, for example, with respect to design basis and a safe shutdown earthquakes, have different ground motion and different design earthquakes. It's those type of things that I think the staff

would have to recognize --
COMMISSIONER McGAFFIGAN: I would defer to Commissioner Merrifield, with the permission of the Chairman.
COMMISSIONER MERRIFIELD: If I could interrupt for a second, in its initial complication, your first example, and that is -- this is probably more appropriately directed to the licensees -- but the intention -- with some, the intention to come in for an Early Site Permit is going to require a bounding analysis, so it's not focused on one certified design, it would be take the three certified designs we have and using a bounding analysis to allow any of those three designs to quality under your Early Site Permit, the follow-up question you might want to ask is, does that have any impact on that timetable you pin them down to.
COMMISSIONER McGAFFIGAN: This is an interesting one. What I take from this, if I were listening in the back and I was actually anxious to build one of the existing certified designs, is I would risk one hearing. I wouldn't go for the Early Site Permit, I would come in for the combined license, build any permitting issues -- the siting issues will be treated as part of the combined operating license application, and then I only face one hearing, right?
MR. BURNS: Right. And, again, that's --
COMMISSIONER McGAFFIGAN: But is I want to just bank a site and I don't -- and I'm not going to actually be building anything until 2010, then I probably would want to go --
MR. BURNS: With the procedural site permit, bank the site that way.
COMMISSIONER McGAFFIGAN: I've used up all of my time. The second part of the question -- Corbin McNeill answered for the Chairman how long would it take us to do a Pebble Bed, and I think he said --
CHAIRMAN MESERVE: Not for me, he said -- he said it for himself.
COMMISSIONER McGAFFIGAN: He said it was 17 months, right? This is Mr. "Six-Month" McNeill telling us that we can do this in 17 months.
CHAIRMAN MESERVE: You wouldn't have something called "McNeill Years" --
(Laughter.)
COMMISSIONER McGAFFIGAN: Well, yeah, if any of these are like dog years. Is there any conceivable way that we could possible, getting a license application in late 2002 or early 2003 for combined operating license, for a site that presumably doesn't have an Early Site Permit because it's less than two years from now, and presumably doesn't have a certified design, is there any way on God's green earth that we could deal with that in anything like 17 months, and the answer is no, so what would be --
(Laughter.)
MR. BORCHARDT: Thank you for the answer.
COMMISSIONER McGAFFIGAN: What would be a guesstimate as to how long that that could possibly take? I mean, you must have these discussions with these people. I know you had two days of discussions the last couple days with -- you know, how long will it take in any sort of realistic scenario?
DR. BARRETT: Let me say that that we've had a lot of discussions about the individual issues that might drive those schedules, but I don't believe we've had any discussions where we've actually talked about the schedules.
MR. KING: We haven't committed to any schedules. We've listened to their proposals. We've talked about pros and cons of their sequencing the way they do things, but we've committed to no schedule.
DR. TRAVERS: An important consideration that we've also talked about are some of the policy issues that we made reference to here. I mean, when you enter into this realm of talking about the possibility of, you know, a nonpressure retaining containment, that's not a position the Commission's been approving. That's not to say you all wouldn't, but it's a function --
COMMISSIONER McGAFFIGAN: But the way the process will work, as I understand it, I doubt we're going to make that decision by December 2002, and once they have their license in and once there's a hearing started -- but we'll make the decisions through an adjudicatory process, you know, and so you won't have any guidance from us other than you'll have to make your mind up, take a position, the licensee will take a position, the Board will take a position, we'll review the Board decision. So, the faster they get it in, the fewer of these issues are likely to be resolved -- I'm not sure -- resolving it in a way that would stand up in a hearing, a lot of these policy issues would take a finite period of time. If you try to generically resolve an issue before the hearing starts, before the license application comes in, that takes some time.
MR. BURNS: Well, it takes some time, but the Commission has done that over the years, and it's established -- it's adopted rules, it has gone through rulemakings while operating license applications have been under review, and applied the outcome of those rulemaking proceedings to the review.
COMMISSIONER McGAFFIGAN: So that's a situation we could find ourselves in if we have early application, would be the -- would the rulemaking try to deal generically with what the rules should be for the reactor, like whether it meets the containment or not, while simultaneously the staff is reviewing the application?
MR. BURNS: Well, again, I think you've got -- design certification is set up as a rulemaking process, but I think you have -- it depends, again, how you're proceeding in terms of a rule -- if you're proceeding in the design certification, that's the sort of the question Commissioner Merrifield raised, and I say it's somewhat problematic because what I think Part 52 asks for in the application for the COL is the complete design in the COL absent a reference to a design certification. And where I think it becomes more difficult -- and, remember, too, because in a design certification process, you basically have a broader, a wider potential stakeholder participation in the design certification than you do in a COL which is more classically site-specific standing.
Remember, too -- Larry's been whispering to me to tell you, keep reminding you -- two is that with the design certification when it's referenced in the COL, you have -- you can't lose sight of the fact that integration of the design into that specific site, into the reactor built, has to be accounted for and is an issue within the context of the COL.

COMMISSIONER McGAFFIGAN: One question -- I'll just finish with that, I've used too much time -- but the -- I was talking to a former Japanese regulator, and he was asking me the question I said I'd just ask you, are we at all concerned -- you know, he's well aware that when we did the existing generation of reactors, we had, you know, pretty robust research capability and we really did do independent safety analyses, independent tests various places, but mostly in this country. We were not relying on data from overseas. And he asked whether we were comfortable with the notion that much of the data that we will get on the gas reactors, if one is built in South Africa, will be coming from South Africa, and how we intend to -- you know, are we going to have a say in how the tests are designed and are we going to have an independent ability to review them and all that. So, have you done any thinking about how that process will work, which is different from what we did, you know, 30-40 years ago when we were dealing with lightwater reactors?

DR. TRAVERS: I think we've already relied on that to an extent in the recently reviewed advance reactors and certified designs. We departed from that classical approach that was used early on, in fact, to rely on data from Japan and other facilities around the world. So, I think we'd have to look at it in particular instances, but I think we've already set the stage for the stability of reliance on sources of that sort of information from elsewhere.

COMMISSIONER McGAFFIGAN: How do you make sure it's good?

DR. THADANI: Fundamentally, we're not doing, and we don't expect to do things much different. Under AP-600, we did have our own tools. We had cooperative agreement with Japan. Obviously, for budgetary reasons, we thought it was the most effective way to go.

We had some of our staff spend some time over there. We were involved from the beginning in the definition of -- in terms of what the facility could reasonably do, and specific tests that would have to be done. We also had a contractor stationed there for -- I'm trying to remember -- a year or two, being part of the organization actively engaged.

By the way, we did that also at Panda in Switzerland, for SBRW design work.

COMMISSIONER McGAFFIGAN: I won't extend the thing. You think there's a protocol whereby you can do this and do it reliably and get the information you need, but it involves following these models that you already have in place, and the short answer --

DR. THADANI: That's right.

COMMISSIONER McGAFFIGAN: Okay.

CHAIRMAN MESERVE: I'd like to thank the staff. We do have a second panel. We've been going about an hour and a quarter now. Let me suggest we take a five-minute break before we proceed with the second panel.

(Whereupon, a short recess was taken.)

CHAIRMAN MESERVE: We now have our second panel which consists of Marvin Fertel, who is the Senior Vice President of the Nuclear Energy Institute; Jim Muntz, who is the Vice President of the Nuclear Project for Exelon; Eugene Grecheck, Vice President for Nuclear Support Services for Dominion Energy; Dr. Regis Matzie, Senior Vice President for Nuclear Systems, Westinghouse; John Redding, Manager, Marketing and Public Affairs for General Electric Nuclear Energy; William D. Magwood, IV -- I've never seen the IV -- Director of Nuclear Energy, Science and Technology, U.S. Department of Energy; and Dr. Edwin Lyman, Scientific Director for the Nuclear Control Institute. We very much appreciate your joining us this afternoon on a subject that is of enormous importance to the Commission, and we're very pleased that you're here to share your views with us.

Mr. Fertel, would you like to proceed?

MR. FERTEL: Thank you, Mr. Chairman. The previous panel discussion was so rich, I was tempted to cede our time and just continue to sit back there listening.

(Laughter.)

Let me first concur with Commissioner Merrifield's statement about the work that was done over the last decade in both certifying the three designs and also putting in place Part 52 as a very good foundation. But I think from the industry standpoint, too, we're very impressed with the initiative of both the Commission, and particularly the staff now, on what they've done literally over the last six to nine months to get ready for new plant applications, and I think they are to be commended for that.

I'd offer the observation, listening to the discussion on the organization, that creating a Future Licensing Organization I think is a wonderful step. I think looking at how you achieve the integration that the Chairman asked for on the international front just within the Agency here is something you should look to do. I mean, we work in matrix organizations ourselves, and they work sometimes. So, the more you have committed resources to something, the better the commitment of those resources to that something are, and I would just offer that as an observation.

The industry is fully committed to moving forward to build new plants here in the United States and, as you know, at our annual meeting two months ago, we unveiled Vision 2020, which said that we were looking to add 50,000 megawatts by the year 2020. A couple of observations on that.

Those will be standardized plants. They also will probably be families of plants, whether they are gas reactors or they are certified ALWRs. I think that offers an opportunity for maybe more expeditious licensing. Certainly, we are looking at it as offering an opportunity for more expeditious construction and deployment, and then efficient and safe operation, and I think that's something to keep in mind as you go down the road. It won't be customized 103 different reactors this time.

The other thing that I know you were struggling with at the last meeting -- and, believe me, we're struggling with on our side -- is all the uncertainty. What's coming when, and how much? And I guess my observation on that is it's going to stay a little bit dynamic for the next couple of years, but it's not going to stay dynamic for the next ten years.

In the next few years, it's going to settle down to really understand what we're going forward with and how fast, and there's some stuff I'll mention and you're going to hear from my colleagues some real things that are happening over the next year or two, but if we are going to build 50,000 megawatts, or anything near it, it's going to start to happen within the next three years in some sort of concerted way where you can see things happening

and coming down the road, and attempt to ramp-up for doing that. So, I'd say we need to move down the road effectively, but I think we'll get more clarity within the next couple years on a whole bunch of these things.

I'm not using the slides now, but if he's up there, if you could go to the third slide.

(Slide)

I think what this shows is just a significant -- go to the next one.

(Slide)

This shows the breadth of activity on the industry side, as we are looking at all the things that are happening, and when my colleagues talk, they are going to talk about specific applications, but just a few points.

Within a year from now, you're going to see applications coming in for Early Site Permits. So, a year from now, over that following year, you're going to see two to three, maybe four, applications for Early Site Permits coming in. And I think Commissioner McGaffigan correctly pointed out that one of the reasons you're doing that is you're banking sites because you're not sure when you're going to actually deploy there. If I were sure I was going to deploy immediately, I might not want to go through two hearings, but I think right now we're expecting to see three to four applications starting about a year from now, over the next year.

And on the comment that Bill made about NRC getting involved nine months to a year ahead of time, within a month we're going to engage the staff on guidance for the submittal of an ESP application, and we would really appreciate the staff's input in what they thing they need early on, and in the application, so that they can be most prepared to deal with it.

I'd offer the observation that while we also understand that existing sites are not all cut from the same cloth, an existing site has an awful lot of information and you don't necessarily have to look at an existing site the same way you looked at it when you were first licensing a plant there, or if it were a green field site, and I'm sure that the staff is going to take that into consideration.

I think the other thing I would say on the stuff that we're looking is that, again, depending upon how you go down the road, whether it's a gas reactor or it's an ALWR, within a year to two, you're going to see COL applications and how quickly they can be reviewed. I think the staff's answer was a good one, they are beginning to look at that. I think the discussion that Commissioner McGaffigan was a good one. My guess is that it's a year or less, if you've got a certified site. If you've got a banked site and a certified design, it's hard to see why it should take a lot longer even with full public participation at that point. So, we think that that's really the way to go.

If you'd go to the next slide, please.

(Slide)

The breadth of things that we're looking at cover everything from how you look at the economics of the plant to how you create the business case for the plants, through the regulatory arena, and certainly in how we build both public and policymaker support, and then ultimately to what you talked quite a bit about, which is the whole infrastructure including the capital formation for people. And we're working with NRC on some of the people issues right now, and will continue to work across the industry on that.

I think a comment that we at NEI are making very broadly in both public and policymakers and Wall Street and other places is that when you look at the future for nuclear power in our country, you're not going to build one unit, you're going to build a lot of units. Our projection of 50,000 new megawatts was honestly predicated at looking at how do you just maintain the current portion of our generating capacity of 30 percent as emission-free. And in order to maintain just 30 percent of our generation at emission-free capacity, we found we had to build 50,000 new megawatts, plus upgrades, plus license renewal, plus some hydro relicensing, in order to stay there. And that was sort of helping to define a little bit what we were looking at. Also, it maintained nuclear in about the 23 to 25 percent range of our demand portion.

So, what we see is this is a real business and an industry and you're going to move forward building multiple plants or, in all honesty, you may not move forward building very many plants, but building one is probably not something you're going to do.

So, I think in planning, I'd say, over the next two or three years, you'll see what the track looks like, and then you'll be able to plan for staffing and everything else to deal with it. And the families of plants will hopefully help in looking at how you can be more efficient licensing, how we can be more efficient submitting applications. Go to the next slide, please.

(Slide)

One of the things we're facing is the uncertainty in both demand and economics in dealing with some of the factors we have. Obviously, there are some uncertainties related to the regulatory process. Clearly, Part 52 provides a tremendous foundation for addressing uncertainties. Certifying designs, banking sites, clearly provides both opportunity for public participation at the front end and greater certainty to the developers of the project that they will be able to license and operate it when they build it, and we think that's real good.

The comments made by Bill about looking at financial and other legal issues, he related those strictly to Pebble Bed. I'd say that there were specific Pebble Bed issues or modular reactor issues. I don't think they're just specific to Pebble Bed, they are to modular reactors, whether it's the GA reactor or the Exelon reactor that exists, but I think that many of the financial and legal issues are actually applicable to any new plant, any merchant new plant. So, we see trying to resolve those as soon as we can, working with the NRC staff -- and, again, I think that they've been very receptive to input. I think we'll continue to do that and, at some point, I'm sure the Commission will have to get involved. Next slide, please.

(Slide)

If we look at what are probably examples of our priorities right now that we would like attention paid to, they are on this slide. Bill mentioned that the staff is planning to resolve the programmatic ITAAC somewhere in the March '02 time frame. Our encouragement would be that the Federal Register request for comments -- I think the period ends in about two

or three weeks -- we would suggest you try to resolve that within 90 days after that. I think that the arguments on all sides have been well ventilated. I think they are well articulated, and they exist.

Now, if the Federal Register Notice develops new information which makes it more murky, then maybe it's going to take longer, but I'm not sure it needs to take much longer unless there's some really new stuff developed out of that Notice, and I would suggest you move down that road as quickly as you can, since it provides a basis for trying to really define what's the bottom bullet on that slide, which is how do you actually implement the ITAAC process. Obviously, it's a different implementation scheme if it's got programmatic factors in it versus if it doesn't, so we think that's important.

With regard to the two middle bullets, you may or may not be aware of this. I know General Counsel's Office is. We submitted two petitions for rulemaking which arrived here, I think, this morning, to address both of those bullets. And our encouragement there would be to include those petitions in the September Federal Register Notice on Part 52, to receive public comment on them, and then try to move down the road and address them. I think our petitions are reasonably solid. I'm sure people will have other comments on them, but I think they provide a very good basis for moving forward to address both the NEPA issues and the Early Site Permit issues that are listed on those petitions.

I think on the cooperation, a few thoughts on sort of the last slide now.

(Slide)

Clearly, in a number of fronts over the last year -- last few years, in all honestly -- the Commission has exhibited tremendous leadership, whether it's in implementing the reactor oversight process or it's implementing the license renewal process, and I think that's been done with much a greater focus on safety. I don't think it's been done with any degradation of safety, I think it's enhanced safety. And I would say the same involvement by the Commission -- as I said, I was willing to cede my time because I thought your discussion was so rich with the staff -- I think the same involvement by the Commission on new plants would continue to be very helpful. I think the staff is committed to moving forward, they are doing a lot of the right stuff, but it's going to require some policy determinations by you all, so I would encourage your continued involvement.

I think we are prepared to exercise whatever process the staff and you all think is appropriate for all stakeholders for interactions. We are obviously doing a lot of things right now and will continue to put those into the process, whether it's petitions for rulemaking, guidance for our applications, or communications among our industry sources.

It may turn out that we need to follow a process that was similar to license renewal, where you formed a panel of senior folks that interacted pretty regularly with the industry. That may be something to consider as we go down the road. Or it may be that we need to go down a process that's similar to what we did on the reactor oversight process where we had pretty regular meetings to discuss things and try to resolve issues in an open forum. And I reserve judgment on what the right path is, but just say that we ought to keep our minds open and exercise those earlier rather than later because I believe that some of the determination on what the industry does in moving forward on buying new plants and doing things will be significantly influenced by the certainty in the regulatory process. The sooner we all figure out what the issues are and resolve them, the sooner we'll be able to feed back to you what your workload looks like and what our plans are. So, I think that there's a mutual benefit of us working as closely as we can together there, and from an NEI standpoint I fully commit to that.

I understand your need for priorities, and I think that during the questoinings, if you have questions on priorities and we can help answer those, we will. If we can't, it means we honestly don't know the answer right now, but we'll try to work with you to help establish priorities so you can allocate resources appropriately.

With that, I thank you for your attention.

CHAIRMAN MESERVE: Thank you. Mr. Muntz.

MR. MUNTZ: I'd like to thank the Commission for this opportunity to present our views today. As you've obviously heard, Exelon is considering the PBMR. First slide, please.

(Slide)

We are -- this is a high temperature gas modular design, nominally 110 megawatts electric, we think, based on proven technology. We are a minority investor in PBMR PTY, which is a venture of Eskom. As we examine our core competencies, we don't find being a reactor vendor one of them, however, we don't mind investing in a successful venture. We do find nuclear operations and wholesale power trading to be among our core competencies, and that is our real interest in this venture. The other investors include BNFL/Westinghouse, Eskom, the State Utility in South Africa, roughly the size of TVA, and the Investment Development Corporation of South Africa, a government-sponsored entity charged with creating infrastructure and jobs in South Africa.

Exelon and the other investors expect to make two decisions in approximately the December time frame. The first one involves proceeding with a full-scale demonstration reactor in South Africa. That decision would kick off a three-year construction program, followed by a nominally one-year test program.

The other decision involves proceeding with the U.S. licensing process, specifically the preparation of an Early Site Permit, and then a Combined Operating License application, with anticipated time frames at this time of mid-2002 for an Early Site Permit, and early 2003 for the Combined Operating License application.

We view the PBMR as merchant nuclear power. It will not be in a rate base, and it will operate in a deregulated environment at the wholesale level. We find the PBMR ideally suited for that due to the lower incremental investment, and also the much faster return with eventually, we believe, an 18-month construction time per module.

We also believe the ability to size a site to the market that you're participating in, and then expand it when the market expands is also attractive. Next slide, please.

(Slide)

Since we've engaged the letter in January to the NRC, we've seen some identification of some solid points of contact, some dedicated points of contact in the NRC. We've seen project managers assigned in Research and NRR. We've seen evidence of support from the Material Section and also OGC on specific issues. We've seen the FLO created, obviously, and staffed, we believe, very appropriately.

We've seen funding obtained from the DOE. We've also had very rich dialogues about funding going forward and how much things will cost. This is important not only to us, but for us to take back and inform the other investors as to how much it might cost to license this technology in the U.S.

We've established monthly meetings for some key legal and economic and technical issues. We've had four of those over the last two days in this room. Our process now is evolved to where we'll introduce two or three topics each month and we'll follow up on any questions and issues that linger from the previous introductions.

To summarize, to date the response of the staff has been appropriate and adequate. In our view, they appear to be positioned to proceed on the schedule that we have discussed with them. We have the concern about the specific technological expertise not only on the staff, but on our part as an owner/operator of this technology. Next slide, please.

(Slide)

In the pre-application period which we believe has been mutually beneficial, if we stand back, we see one recurring issue that usually manifests itself as the NRC desiring more and final information before any comment or opinion can be offered and, as Exelon PBMR desiring to hear what the requirement will be based on the PowerPoint slides that we've presented to the NRC. Obviously, in our view, neither of those approaches will be acceptable. This is not meant as a criticism of the process and, in fact, as an observation. We believe we have learned to maximize the value of this interaction and it's evident from the quality of the dialogue that's taking place in these interactions, they have been steadily improving.

The Pebble Bed we believe will be licensed on the current set of regulations. The staff recommendations and Commission policies are expected to form the basis for licensing the PBMR. We are not engaging in rulemaking for two reasons. One, we believe the time frames associated with that would take this out of being a commercially viable venture, and we also believe it is unnecessary.

We do expect some exemptions, but as our initial review of this would indicate, we think there would be a normal amount analogous to the last plants that were licensed in the U.S. Next slide, please.

(Slide)

Two of the most important issues both in the pre-application space and, obviously, once we submit application, are going to be certainty and timeliness. We are starting with some of the big deal-breakers, things that we need to have an understanding of how they will impact the cost of this technology. They are listed there. We've talked about them. I believe you are familiar with those issues. We've gotten some feedback already from the staff on those.

We are also -- and I'll call those the legal/economic issues. We are also attempting to work from the bottom up and get into some of the more technical issues. We are just starting to introduce those into the pre-application discussions. Our view is it's never going to be easier to change a design than it is now. We want to make sure the design is licensable when it eventually gets there.

Our expectations at the end of pre-application space, as we've defined it, is nominally September '02. We'd like to have the Commission position issues on policy issues known, and we'd like to have the Commission process established to support our application, and by that we mean how will the Commission stay engaged on an application such as this? How will we move forward when we get stuck? Our confidence that this process can be established and understood is very high. Based on our experience at Exelon, with life extension and license transfers. Now, if we submit a COL, it's going to be because we believe there's a reasonable chance of successful licensing in a known time frame that provided our design meets all the issues and aspects and criteria that we have discussed in pre-application's phase and the requirements for what is sufficient don't change much, that we would believe that we'd have a reasonable chance of success. We do not expect to have 100 percent on those discussions or on those results, and we know there are going to be changes as we go once we submit an application, but we want to get a reasonable understanding of what the process will look like. Last slide.

(Slide)

Just a word on schedule. For our combined operating license which, again, we intend to submit in early 2003, we are going to need to believe in the technology, we are going to need to believe in the safety of the technology, and we are going to need to believe in the commercial viability of the technology, before we submit a license. We are not there on any of those at this point, and we're going to certainly need to get there before December, before we decide to invest anymore money in this.

All the partners in this venture believe that the expediency is to find out what the issues are as early as possible, both from a licensing and from a technology point of view. If the answer is going to be it's not licensable or that it's not going to work because of certain key components such as our turbine generator, we want to get to that answer and understand that as soon as possible so that we can look elsewhere for our sources of generation.

Now, I also would want to mention that Exelon has to balance the risks of building here in the U.S. shortly after the South African prototype, i.e., being the first customer, and the risks of building more than one unit here, which certainly this is about building a lot of units, we need to balance the risk of that with the benefits to the venture that you get from economies of scale from a large early order, whether that's Exelon or others around the world. And that's another risk that factors into our consideration of schedule. That's the end of my presentation.

CHAIRMAN MESERVE: Thank you. Mr. Grecheck?

MR. GRECHECK: Good afternoon. Thanks for the opportunity to come here today and discuss with you both the activities that Dominion is

undertaking at the present time to evaluate future options to provide energy for our customers, and also some of the issues that we are looking at in the regulatory scheme as we evaluate whether nuclear, indeed, is a viable option among that collection. First slide.

(Slide)

On June 1st, we did formally kick off an ESP project within the company. There is a project organization in place. That organization really as two major goals at the present time. One is to validate the Part 52 licensing process and, in particular, the ESP process which, of course, is untested and hasn't been demonstrated before and, second, and concurrently, to evaluate available reactor technologies that are out there in the marketplace. So, not only are we looking at sites, but we are engaged in discussions with all of the various technology vendors, looking for what those options might be.

I think it's important to note that this is not a commitment by the company to order a new nuclear unit, or even proceed with an application because, at the present time, we are simply evaluating whether the process makes sense for us, but there is ongoing effort to actually do that evaluation.

We are also looking at other siting possibilities. On the next slide, I'll talk about what we are currently looking at, but it is important that there are many, many flexible options still available and, as Mr. Fertel said before, as time goes on, we'll have more certainty. As more certainty develops on both sides, we'll be able to solve some of those problems. We understand that your concern is what resources to assign. Our concern is that as things are uncertain, that uncertainty develops risk factors which at the present time are too great to proceed forward with any kind of definitive announcement. Next slide.

(Slide)

Now, the approach that we're currently using is, first, the feasibility study. Today, what we are doing is evaluating our two existing sites at Surry and North Anna in Virginia. Both of those sites currently have two operating units on them. Back in the 1970s, they had construction permits at each of those sites for additional two units, so they were all licensed for four units per site. What that means is that both of these sites have been evaluated from a site perspective two times. We are now, of course, looking at it a third time.

Now, once we make that decision, which we would expect to make by the end of this year -- the next bullet there -- the management decision is do we go forward with an ESP application. What would that be predicated on? Well, one, of course, is the site suitability. Second would be our continuing analysis of what the marketplace is doing in terms of energy requirements, what we believe costs and schedules look like. And, finally, the cost of doing the ESP application itself, if that is an investment that the company wants to make at that point. So, currently we believe that we will make that decision in December or January.

Let's assume for the moment that we do make the decision to proceed. We're estimating currently that it will take about 12 to 14 months to prepare that application, which would mean that we would be in a position to be making an application to the Commission in the first quarter of 2003. Now, that schedule is pictorially represented on the next slide.

(Slide)

You can see that up at the top we're currently in the six-month feasibility study. We have a decision right at the end of the year, 14 months for the application submittal in March of 2003. The next bar on there is we're showing 18 months for NRC review. Now, there was some discussion with the previous panel as to what that time would look like. Let me tell you where that 18 months came from.

We looked at the process and we said given the questions that need to be asked, what the legal requirements are, we believe it can be done in 18 months, but I would say that that 18 months is really an outer bound. As I pointed out before, both of these sites that are on our candidates list have been looked at extensively before. There are operating reactors on them. We do not believe that there have been substantial changes in the environmental or demographic conditions around those sites that would make extensive reanalyses required.

So, therefore, the challenge really is how do we use all of that information that is already on the docket in previous proceedings to expedite the process, and we are certainly looking forward to working with the staff to try to do that. So, using that 18 months as an outer bound, that would show that by the end of 2004 we should have an approved site in place. Now, if you go to the next slide -- and this gets to some of Commissioner Merrifield's questions before.

(Slide)

As we know, Part 52, as it was written, envisioned a very specific sequence for all of this to happen, that the vendors would be busy certifying designs, various applicants would be looking for sites, getting those sites approved, and then with both of those on the shelf, an applicant will then pick up a bank site and a certified design, come into the Commission and ask for a combined operating license. That's a very neat and logical process, but part of the problem that we see right now is that the marketplace is changing rapidly. Even the schedule changes that you've seen just happening over the last several weeks are all a reflection of the fact that there is very little certainty as we look forward over the next year, two years, five years, ten years, and some of the built-in time frames that go into that in some cases may preclude consideration of nuclear as a viable option, if you have to build in procedural or process-driven delays into the overall application sequence.

So, it is possible that an applicant could have an ESP application proceeding, and make a decision during that time that a particular technology is now the technology of choice, and come in ready to make a COL application. Now, it might be a COL application with an existing certified design, or it might be an application with a design that is perhaps in the process of getting a design certification.

I think it's important for all of us that that we figure out exactly how all that would work. What does the process look like? How can we make these processes proceed without built-in delays as we would wait for some other process to finish or to come to fruition.

In addition, we did make a comment in a letter that we sent to

the Commission I believe in January, that we do need, I think, to study formally what are the procedural issues that would be involved in looking at an ESP for a previously licensed site. I think we need to come to some understanding about what those issues are, what are the deltas, where do we look for those differences, and how do we expedite that process.

So, again, thanks for the opportunity, and we're looking forward to working with you.

CHAIRMAN MESERVE: Dr. Matzie.

DR. MATZIE: Thank you very much, Commissioners, for the opportunity to speak to you today. My name is Regis Matzie, and I'm responsible for Westinghouse's new plants. That includes those under construction in Asia, as well as those under design in licensing. Slide 2.

(Slide)

I would like to speak briefly to the subjects on this slide, with the principal emphasis on AP-1000. Next slide.

(Slide)

You are already familiar with the Westinghouse System 80+ and the AP-600 designs which have been successfully through the Part 52 design certification process. Because of the dramatic changes in the electrical supply market that have occurred since these plants were designed and certified, Westinghouse has increased the power level of the AP-600 design to over 1,000 megawatts electric, to allow it to compete with other energy sources in a deregulated electricity market.

Westinghouse has applied for a pre-design certification review for this incremental modification of the AP-600 design that we now call AP-1000. If that pre-certification review is satisfactory, we plan to apply for a formal design certification early in the next calendar year. Next slide.

(Slide)

The power increase for AP-1000 was accomplished by making the minimal changes in selected components that are needed to achieve the power upgrade. We have retained the overall footprint, the overall nuclear island layout in the vast majority of the design detail of AP-600 in this approach. Our strategy was to minimize changes to the design that is already certified in order to make the review for AP-1000 certification as efficient as possible. We believe that upwards of 80 percent of the existing design certification, as listed in the AP-600 design control document, can be used directly with no more changes than simply changing the name. The other approximately 20 percent obviously changes with the power level and the safety analysis transience, et cetera.

The scope of the pre-certification review is basically to address three key areas. The first, are the AP-600 test programs that were used in the certification of that design applicable to AP-1000? Second, are the safety analysis codes used to certify AP-600 applicable to AP-1000? And, thirdly, as the other two certified designs used, can we also use design acceptance criteria in some areas where, for AP-600, we actually provided the full design detail?

We believe that the targets on this slide relative to schedule and cost of review are achievable if the NRC and Westinghouse apply the efficiencies that are available to us to incrementally convert the AP-600 certified design to an AP-1000 certified design. Next slide.

(Slide)

At the risk of getting into another energetic discussion on schedules as we had in the previous panel, I'd like to provide this slide as motivation for our schedule for the certification of AP-1000. Basically, we would like to be ready with a certified design around the end of the calendar year 2004 so that it could be coupled with an Early Site Permit and go through a rapid COL process with possible first deployment of the design sometime in the year 2005 or very shortly thereafter. Next slide.

(Slide)

We believe that we have reached basic agreement on the path to complete the pre-application review of AP-1000 with the staff. This slide lists the four major submittals that Westinghouse has provided as part of the pre-certification review, and on which we have held meetings with the NRC staff, and these are the reports that address the key issues that I had mentioned earlier.

Over 40 RAIs have already been received thus far. Some have already been responded to and we are continuing to have dialogue even today with the staff and discussions on the responses to close the remaining RAIs. Next slide.

(Slide)

I'd like to turn now briefly to another design, IRIS, which was mentioned earlier in the previous panel. Unlike AP-1000 which started with an already certified AP-600 design as its design and licensing basis, IRIS is started with a clean sheet of paper. The design has both DOE and substantial international support, and strives to meet the objectives of Generation IV program, but hopefully in a nearer time frame.

A conceptual design has been completed, and already introduced to the NRC staff in May and June. Emphasis thus far has been on technical aspects in the safety approach. The team has not yet formulated a licensing plan, but will shortly turn attention to this detail.

The schedule shown here is admittedly aggressive on this slide, but we are hopeful that it can be achieved so that the plant will be ready for deployment early in the next decade. Next slide.

(Slide)

As you would expect, Westinghouse is active in a variety of areas involving future plants, with NEI, DOE and some of our customers, and these are shown on this slide. Next slide.

(Slide)

In summary, there's a lot of excitement in the industry as the Government, the public, the electricity industry come to grips with the demand for electrical energy in a deregulated environment. Nuclear power currently plays a vital role both in reliable power and clean energy, and the prospects for its continuing in this role depend on the industry providing designs that can safely and economically compete in a deregulated environment. That, in turn, places substantial burden on the NRC to be prepared to review the new designs and obviously the potential new sites in a cost-effective manner, with qualified staff and processes that are efficient and timely. Thank you for

your attention.

CHAIRMAN MESERVE: Thank you. Mr. Redding.

MR. REDDING: Good afternoon, Chairman Meserve, Commissioners. You'll be happy to know that GE does not plan to submit a new design for your review. We like the one that we have.

(Laughter.)

Imagine, if you will, that you're the individual that has to go to your Board of Directors and say, "Here's the reason why we should build a new nuclear plant", and the kind of questions you can expect to get, I think, are, "Well, is this plant going to generate the revenue that you say it's going to, is there going to be some technology issues that we don't know about". They are going to ask, "are the costs that you've laid out here what you say they are going to be, or will there be cost overruns, schedule overruns, so on and so forth". So, in other words, there's a lot of project risk that you can't eliminate, but you have to convince your Board of Directors you can manage before they'll ever give you the go-ahead to build a new nuclear plant. And, of course, one of those is in the licensing arena, and that's the context I think in which we're having this discussion, not that Part 52 is somehow insufficient -- and let me tell you, compared to some other countries where we do business, it is absolutely terrific -- but, rather, are there some appropriate steps that can be taken to reduce some of the uncertainties, just like, you know, you can reduce some uncertainties in cost and schedule, so that's the context in which I want to make my remarks.

(Slide)

U.S.-based, U.S. developed technology and advanced lightwater technology has not gone unused in all these years, and the first slide shows the first application, which is the Advanced BWR in operation at Kashiwazaki, and the NRC had a role to play in this. If you recall, the NRC and many Japanese regulators were meeting on a six-month basis while the ABWR was being reviewed here and the ABWR was being reviewed in Japan, and that was a good interchange which resulted in a better plant design in both countries. And as you can see from this slide, our Japanese customer has been pretty happy with the plant in terms of safety and performance. There's about -- I think there's four that have been approved for more, and many more that have been planned. Next slide.

(Slide)

This slide shows that nuclear power can survive the political process, too. In Taiwan, you know, we've had our ups and downs. Thankfully, the project has been restarted -- it was suspended, as you know, and it's been restarted, and we're finally delivering equipment again. This plant is more truly based upon the U.S. certified design. There's been a few changes on the turbine side, but that's been about it. So, a lot of credit can be spread around. GE, of course, doesn't mind taking a little bit of credit. The NRC had a role in this, in certifying this design. DOE was instrumental in supporting it, as was EPRI and the U.S. utility. So, I think Taiwan, the Lungmen project when it gets done, we can all take some pride in that project.

(Slide)

This is just a reminder, the ABWR is the product of a lot of our efforts, as I was saying. The ABWR was certified way back in September of '96. We thought that day would never come, and now it's five years ago already -- four years ago.

Anyway, the point here is that the ABWR, we think, is ready for a project right now in the U.S. All we need is a customer. And I think -- and this is GE's opinion -- that there is a window of opportunity -- three or four years i my opinion -- in which the nuclear industry can prove that it's a player, that it can contribute to solving the nation's energy shortage to help rebuild America's electricity infrastructure. And so I think that demands challenges are all certified designs into play as soon as possible.

And the rest of my comments, I think, echo those of the previous speakers. I appreciated Marvin Fertel's remarks which talked about reducing uncertainty and risk, and that's really my comments. I have some specifics there that I don't think I'll go into because they've been addressed already, but anything that the Commission can do to reduce the uncertainty in how we apply ITAACs, how we eventually structure and go through the COL process in an appropriate way -- obviously, nobody is asking for something that is not appropriate or that would short-change safety in any way -- but if there's anything that's appropriate that can be done to reduce uncertainties, that will make the decision to build a new plant just a little bit easier to make.

I remember -- because I've been around this industry for 25 years -- ten years ago when Marvin Runyan was the head of TVA, he had this idea he wanted to build a new nuclear plant. I guess he had this thing about building big buildings, like the Post Office. Well, anyway, he met with Jack Welch, the CEO of General Electric, and they had a conversation, and Mr. Welch reportedly said, "Okay, here's the deal. I'll build you an ABWR for cost plus $1.00". And Marvin looked at him and said, "What's the catch?" He said, "Well, you have to take all the risks." And Marvin said he declined on that offer. One reason was at that time TVA had an estimate of how long it would take to get a COL -- and they went to an outside law firm, so take it for what it's worth -- but the estimate that came back was six to twelve years, with best estimate of eight years, and that really put them off. I think that's when our discussions went from being serious to be idle chit-chat.

So, anything that can be done to if not shorten the COL or ESP process but to build predictability into it, I think that's what we're looking for. Thank you for your attention, appreciate this opportunity to talk to you.

CHAIRMAN MESERVE: Thank you. Mr. Magwood.

MR. MAGWOOD: Thank you, Mr. Chairman. It's a pleasure to appear before the Commission today. I've actually not done this before. I don't it escaped, but maybe it's because nuclear hasn't really been a burgeoning issue in the last few years, and it's a pleasure to be sitting here with this panel talking about the future of nuclear not as a long-term theory, but really as almost an near-term certainty.

I should point out, however, that you have reached a threshold point at this point in the panel. From this point on, no matter what plant gets built, nobody makes any money.

(Laughter.)

I also, Mr. Chairman, need to apologize. I was unable to get out of my 4:00 o'clock appointment, so I will need to leave. Fortunately, Mr.

Johnson, Shane Johnson, my Associate Director for Technology, is here and can answer questions after the panel is done speaking.

I would like to begin by recognizing that since I've been in Federal service seven years now, which seems a lot longer than I had in mind, quite frankly -- some of you probably feel the same way -- I don't think that DOE and NRC have had a closer relationship. I think it's become a very, very instructive and important relationship that is actually becoming more and more important as time goes on. Dr. Travers and Dr. Thadani have both been instrumental in making that happen, as have members of the Commission, and I appreciate that over the last few years.

We are working very hard right now to make the Commission as busy as we can manage. We are working with the industry and we are working with the international community to bring nuclear technologies to the forefront in the United States, and I think that some of the discussions you've heard today are the result of some involvement by DOE. In fact, I think almost all the discussion you've heard today is the result of some DOE involvement at one time or another, except Dominion who almost never asked for money from us, unlike some of these other folks.

We are very interested in seeing new nuclear power plants deployed in the United States in this decade, and we tend to think about the future of nuclear energy divided up between two blocks of time -- before 2010 and after 2010. Before 2010, we see a tremendous opportunity, a window of opportunity, as Mr. Redding pointed out, for advanced lightwater reactors and possibly some gas-cooled reactors, hopefully the Pebble Bed in particular, to become -- to serve the energy needs of the United States. And we are working with both the Commission and the industry, and also others, to try to encourage that to happen.

We have put together a task force called the Near-Term Deployment Working Group, which is working under our Advisory Committee, the Nuclear Research Advisory Committee, that is making recommendations and working very closely together to try to lay out what are the barriers keeping us from building nuclear plants sooner rather than later, and they have made specific recommendations, and some of those have already been made public, but we're still working with them on developing those.

One of the things that they have recommended is that DOE become directly involved in a cooperative activity to demonstrate the ESP process, as well as the COL process, and we are interested in doing that. We are exploring that, and may actually do that sooner rather than later.

There is also some interest in having us involved in some technical activities. For example, we are working with Westinghouse and thinking about the issue of salability between the AP-600 and AP-1000, and we've been involved in some of those activities, and I think that's been fruitful.

And as Dr. Travers pointed out, we are also working with the Commission staff directly supporting the effort to develop a gas reactor framework which I think is laying the groundwork for the future, and we've had a lot of discussion today about both the G-IV reactor and also the Pebble Bed Reactor, and we're hopeful that we can see our way through some of the complicated policy issues that Dr. Travers mentioned, and we think that DOE and NRC can work together to try to resolve those, so we're looking forward to that.

We also look at the world post-2010, and for that we have developed the Generation IV initiative that we think will help stimulate both research and technology an entry of students in the United States as well as hopefully resulting in some very practical energy technologies that can be deployed in the not too distant future.

We have -- I don't know that this has been publicly announced yet, but effective Monday, the generation for an International Forum, a collective of countries including the United Sates, France, Japan, Korea and others, have made that official. The generation for International Forum now exists. We're very pleased about that. We believe this will be the framework through which we'll be able to work closer with international partners to develop these new technologies and see them deployed quickly.

International cooperation is going to be the hallmark of a lot of DOE activities, and we encourage the Commission to work in the same manner because it's essential that we think of these new technologies not as U.S. technologies, but as world technologies, because unless we are able to build reactors not just for the U.S. market, but for a larger international market, we'll never see them be economically competitive. So, we're very interested in seeing the AP-1000, the IRIS, the Pebble Bed, and other technologies be available to the world market the same way the ABWR has been available to the world market.

I think I will close pretty much with that. I will say that we are interested in maintaining the relationship we've built with NRC. We expect to continue funding some of the gas reactor framework work that has been going on this fiscal year and the next fiscal year, and hopefully we'll be able to work together in bringing these technologies to reality, and looking forward to working with you towards that goal. Thank you.

CHAIRMAN MESERVE: Thank you very much. Dr. Lyman.

DR. LYMAN: Thank you. I appreciate the opportunity to present the views of the Nuclear Control Institute before the Commission again. Our organization is focused primarily on nuclear nonproliferation and nuclear terrorism issues, but as the only member of the public interest community on this panel -- and I must say it is very lonely up here right now -- I feel obligated to bring up some other issues that are in the general realm of nuclear safety that other organizations have expressed in the past. May I have the second slide, please.

(Slide)

The overarching framework of my concern is that without public subsidy -- and most of the activities that Mr. Magwood just described, in my view, fall into that category notwithstanding -- new nuclear plants are only going to be built in the United States if they can meet the desirable economics of gas turbines, and that includes low capital cost, short construction time modularity. Next slide, please.

(Slide)

And a chief question in my mind is, can this really be done safely, or are these objectives fundamentally incompatible with nuclear

technology and maintaining the level of safety that we now enjoy. NRC policy decisions will play a decisive role in determining the economic viability of new plants. I think the public is justifiably concerned that this puts into -- this challenges the NRC's ability to remain independent of promotion since the future of the industry may well depend on some of these decisions. Next slide, please.

(Slide)

Some of the regulatory challenges that have to be faced are that these economic imperatives do not adversely affect safety, the risk of radiological sabotage, waste management issues, non-proliferation, and the ability for full public participation. Next slide, please.

(Slide)

Unfortunately, the first new reactor that's coming down the pike, a lot of the issues that have been discussed, or the framework that has been described for this reactor, are not consistent with maintaining a lot of the objectives in the previous slide. First of all, the PBMR characteristics that are fundamental to its economic viability deviate from traditional defense-in-depth. One is the lack of the high-pressure containment that's capable of resisting combustible gas detonations. Another is the significant reduction in safety-related SSCs and, finally, a 40-fold EPZ decrease which was proposed. Next slide, please.

(Slide)

All of these really depend on a much more accurate determination of the accident source terms that can be expected, that simply has not been done yet and may take a lot of time to resolve. First of all, the Pebble performance is very sensitive to initial conditions. The robustness of the Pebble Bed fuel is now being oversold by its promoters, and a quick review of the existing literature shows fission product release can occur significantly level well below the fuel degradation temperature of 2000 degrees Celsius.

On that point, I'd also like to stress the quality control issue for the fuel, and Exelon itself has said that quality control is the heart -- or the fuel is the heart of the safety case for the reactor. In that case, I think that a programmatic ITAAC in quality control is really essential for that reactor.

Last issue is the safeguards. I just learned that the safeguards resources associated with the South Korean Candu monitoring, that it's about five times, or six times greater safeguards resources are required for online refueled reactors than for conventional LWRs in South Korea, and although IA inspectors don't come into our country unless we ask them to, it is a demonstration of the relative vulnerability and proliferation risk associated with online fueled reactors like the Pebble Bed. Next slide, please.

(Slide)

With regard to sabotage, which is an ongoing concern of our organization, no matter how inherently safe a reactor design, it cannot be rendered inherently safe from sabotage with a sufficiently informed malevolent actor. For instance, to cause a deliberate graphite fire is a possibility, even though it may be precluded by design from accidents. Next slide, please.

(Slide)

So, in that context, features like the absence of leak-tight containment and the other issues I referred to have to be evaluated in the context of a potential sabotage event as opposed to the risk of an accident. This raises issues, for instance, the protective strategy for a site that contains 10 reactor cores for the same energy generation as one large reactor, that would require a fundamentally different approach to physical protection of that site, and I'd like to point out this isn't only a domestic issue, the NRC really has to be concerned with the impact of its licensing of this design on international exports and the potential for export of these reactors to areas of greater concern both from a proliferation and sabotage point of view. Next slide, please.

(Slide)

So, we think that sabotage resistance really has to be incorporated advanced plant design at the outset, and the ACRS actually recommended that in 1988. Such an effort has not been done, in my view, for the Pebble Bed and other designs that have been proposed and, therefore, target set analysis for new reactor designs really has to be a high-priority activity for NRC involving the NRR Reactor Safeguards people at the outset, and I don't think that's been done either. Next slide.

(Slide)

As far as waste disposal goes, the spent PBMR pebbles cause a considerable waste problem compared to LWR fuel that produce a volume and weight of spent fuel which are 10 times greater, leading to a proportionate increase in storage and transport needs. And, therefore, I think that Exelon's assertion that the Waste Confidence Rule applies in a generic also to Pebble Bed fuel really doesn't have a technical basis. Next slide.

(Slide)

Price-Anderson, a contentious issue, but I think a number of members of the public need to be convinced that if the new reactor designs are so safe, why does the industry still need a liability limit. And Exelon has requested that they get a break in the Price-Anderson assessment, retroactive assessments, and I think that more appropriately everyone else's assessment should be increased by a factor of 10 instead because that would probably bring the total assessment more in line with the more accurate estimates of what the total damages to a severe reactor accident would be. Next slide, please.

(Slide)

Public confidence, I think, is probably better enhanced by "gold-plating" reactors rather than trying to eliminate a whole lot of safety features at once, which seems to be the direction that Exelon is going in and, also, as far as public participation, of course, there's ongoing concern among the public that the Part 52 proceedings as well as proposed elimination of formal hearing requirements overall, reactor licensing is going to really cut short the ability of the public to raise safety issues that have not been adequately considered in the licensing process. Next slide, please.

(Slide)

So, as far as resource, I think time is really the most important resource, and that's what the industry seems to want to cut short the most, and I think NRC really has to resist the false sense of urgency for expedited new plant licensing that's being fostered by a so-called "energy

crisis" which is rapidly evaporating as the price of natural gas plummets, and also the short attention span of deregulated utilities, which should not drive the ability of the NRC to take deliberate time in resolving safety issues. Next slide, please.

(Slide)

For instance, the aggressive licensing schedule for the Pebble Bed which has been remarked on, the 20-month construction period is really inappropriate for an immature technology. And to suggest that certainty in the absence of risk is required in advance is ridiculous because risk is going to be a part of innovative technology, and that's something that a utility should be willing to accept to put the research and development effort into resolving all the outstanding safety issues. Next slide, please.

(Slide)

For example, for the Pebble Bed, I think severe accident fuel testing at the maximum burnup should be required. That's something that should be done domestically, and that's going to take quite a bit of time and resources.

So, in summary, I think NRC really has to proceed cautiously and ensure full resolution of all technical concerns before proceeding with advanced reactor licensing. Thank you.

CHAIRMAN MESERVE: I'd like to thank you all for your presentations. This has been a very interesting afternoon. Let me just make a comment at the outset that several of the presentations had presented, I think, a dilemma that we need to work -- all work together to resolve, and that is that in order to make decisions, you would like to have some regulatory certainty with regard to the environment and exactly how the context in which the regulation will proceed.

On this side of the table, we have a hard time justifying the allocation of resources until we have a better sense of what your decisions are going to be because we need to prepare for the circumstances, but we don't want to squander resources if they are needless. We sort of have a chicken-and-egg problem that is in front of us, and it seems to me the only way to resolve this is to continue to have the sort of interaction it's obvious you have had with the staff so that each is aware of the problems and we work through the issues, including the issues that Dr. Lyman has presented, as ones that we confront and deal with so that we can mutually have a sort of sensible approach where we don't on either side spend resources with an expectation of actions by the other that end up not being possible for one reason or another.

Mr. Fertel, I was puzzled by one aspect of your job in that you had emphasized that the resolution of the issue of the programmatic ITAAC was something that was of very high priority and needed to be resolved quickly. I appreciate the significance of the issue, but the question I have for you is -- let me just express my appreciation to Mr. Magwood for joining with us this afternoon, the members appreciate it. And I apologize that we've gone a little over in our time.

As to the programmatic ITAAC, I understand the significance of the issue, but I don't quite understand its urgency in that this is something that only would kick in after whereas, in fact, a construction application filed in the context for that, and we seem to be some ways away from that.

MR. FERTEL: It's a great question, and let me try and clarify why we think it's high priority. You started with the dilemma of uncertainty. Probably the thing that brings significant certainty or uncertainty to new plant deployment under Part 52 is how you implement the entire ITAAC process. So, if you remember the slide I had where that was the first bullet, the last bullet was to work carefully and closely with the staff over the next year or so to come up with the verification process for the ITAAC implementation.

If programmatic ITAACs are in, the verification process is a very different verification process, probably a much more complex one, programmatic ITAACs are not in. So, one thing we're looking at in order to give confidence to the people that are looking to deploy plants is that the ITAAC process has a lot of certainty. I mean, it should have tremendous rigor, should be done right, but it should have certainty.

So, the sooner we can define with the staff and get agreement on how that process goes forward, the greater the certainty in at least one major aspect of the regulatory process that could be addressed absent an application at this point, and may actually stimulate applications down the road, and if programmatic ITAACs hang out, it affects our ability to do that.

I think the other thing, Mr. Chairman, is that we honestly believe that unless something came in on the record from this Federal Register Notice that creates a whole new path to go down, the information exists to resolve it.

So, again, looking for action that says yes, you can deal with policy issues -- whichever way you want to deal with -- we obviously have a view that it can be resolved one way versus another. The sooner you do that and you do it in a concrete way, the more confidence you give that other policy issues can be resolved. So, those would be the two reasons, one to allow us to really deal with this verification process substantively and, two, to demonstrate that the process when the information exists can get to a decision.

CHAIRMAN MESERVE: That's helpful. I was really trying to understand whether the context for your 90-day recommendation was that there really was a 90-day deadline or whether this was a Corbin McNeill deadline.

MR. FERTEL: Well, I thought it was interesting. McNeill Years, I think, are six months, so I guess this is half a McNeill Year we're asking for. And there's nothing magic about 90 days, but it's better than saying let's start thinking about it form March of '02.

CHAIRMAN MESERVE: I had understood from some of the materials that had been submitted to us from the staff in anticipation of this meeting, that NEI was contemplating the submission of a Petition for Rulemaking in December of this year, that would sort of provide the foundation for a suggestion that we move from a deterministic regulatory system to a more risk-informed, performance-based approach for future plants, basically the clean sheet of paper approach. Is that still your intention, and how important is it?

MR. FERTEL: Our intention is by the end of the year, December of this year, to have gotten agreement on the industry side on an approach to a new risk-informed, performance-based licensing framework for new plants, for new reactors, and whether it will take at that point the form of a Petition for

Rulemaking or whether we would think at that point we would submit a white paper and try and enter into a more substantive dialogue like we did on the reactor oversight process, I think the jury is still out on our side as we evolve into -- and we obviously are going to be talking with the staff between now and the end of the year, too. So, the only thing I would say is by the end of the year we would plan on giving you, giving the Commission, something that would define what we think is a good process for the future, whether it's a Petition for Rulemaking, I withhold judgment on that right now because we may want to have more dialogue before we get to that point.

CHAIRMAN MESERVE: That obviously would be a very major undertaking on both sides. It may be the right thing to do, I don't want to suggest it isn't, but if that's something that's really seriously viewed as important, that's the kind of activity for which advanced planning in terms of resources is going to be important.

MR. FERTEL: We'll provide you our best guess as you get into the budget cycle for the next fiscal year, on what we think might be coming down on that particular activity. And right now, the way we're looking at it is obviously we have applicants like Exelon that's going down the process absent this, so we're not saying it's essential to have in place for what's going on for the near-term reactors, but we do see if we move further down the road, if we get to Bill Magwood's Generation IV reactors or whatever, we think that having a new part in Title X that actually defines a risk-informed effective licensing process for new plants rather than try to apply Part 50 all the time under the 52 banner, would be a good thing to do, but we do recognize the impact on resources, so I'll do what I can to give you enough warning on how aggressive we think that needs to be.

CHAIRMAN MESERVE: Appreciate that.

Mr. Muntz, I have a factual question for you, and I don't want to ask you to answer a question you can't answer for whatever reason, you had indicated that you expected a Board decision in December of 2001 both as to whether you would proceed in South Africa and as to whether you would proceed in the United States. Is it possible the Board would decide not to proceed in South Africa but still to go forward in the U.S.? Are these linked decisions in your strategy?

MR. MUNTZ: That is not possible now. We do not have the right to proceed with the technology absent the South African -- if the South African project has gone ahead, we cannot proceed here without proceeding there.

CHAIRMAN MESERVE: Mr. Johnson, one of the things that Mr. Magwood had talked about was the Near-Term Deployment Group and its activities, and I recognize perhaps because the group is still working, you may not be able to answer this question, but I'm curious to the extent to which they are addressing issues that bear on regulation issues that are intended to be input to us as we think through these processes that we've been discussing today.

MR. JOHNSON: Thank you, Mr. Chairman. The Near-Term Deployment Working Group is looking at and addressing the institutional regulatory barriers to the near-term deployment of new nuclear capacity in the United States. The regulatory aspects that they've been addressing to date and the recommendations that they have made in an interim report to the Department has focused primarily on the demonstration of the NRC's Early Site Permit process and the Combined Operating License process. There is a feeling amongst the industry that given the uncertainty and the fact that no one has started down those paths, that they would like to enter into a cooperative cost-share program with the Department in a manner not unlike the certification of the ALWR designs.

So, I'm not sure that the product from the Near-Term Deployment Working Group is going to be something that really has a tremendous value to the Commission moreso than what it has for both the industry and the Department.

And if I might add, their final report is due to be completed in September of this year.

CHAIRMAN MESERVE: Thank you. Dr. Lyman, several of your slides dealt with the issue of a pressure-retaining containment and the fact that the PBMR was not envisioned to have such a containment. And this is really a question for my education.

If it could be demonstrated that a nonpressure retaining arrangement is sufficient to prevent the dispersal of radioactive material in the event of a severe accident, is there any reason why we shouldn't find that acceptable?

DR. LYMAN: Thanks for the question. Well, I think the key really is the sabotage issue in connection with how you define the design basis and beyond design basis accidents that you regulate for. There is going to be some mechanism that will provide for a dispersal of a more severe destruction of the core than may occur in anything but an incredible accident. And so if there is a viable path by which a saboteur could destroy the core, damage the core to the extent that you would have a greater fission product release than is predicted from the maximum credible accident, then I would say a containment is always prudent.

There are also other issues -- the design itself -- the designers have argued that you really can't have the conventional kind of containment because that would impeded heat removal in their design basis depressurization. Therefore, it is actually inconsistent with having such a containment. I think if that's the case, then the design itself if flawed.

CHAIRMAN MESERVE: I only know about this from what I've been reading, and I read the same things that you do, and I've seen recently that the claim has been that if it were constructed, it would be constructed with something I guess they are calling a "citadel", which would be a heavily reinforced structure that if it's what I believe, is what I understand it is from what I've seen in the popular press, would be something that would be able to deal with an aircraft collision with the structure, and presumably to deal with sabotage events, but they would still not be pressure retaining -- apparently that's inconsistent with a safety case -- but there would be filtered capacity to be able to prevent the release of radioactive material. And I'm just going to push you a little bit, why in principle isn't that an acceptable way to proceed, if it could be demonstrated. I mean, I recognize it hasn't been demonstrated yet.

DR. LYMAN: Well, if you could demonstrate that the functions of a conventional lightwater reactor containment are not required to protect the

public health. I'm just not sure what it would take to demonstrate that to the degree that you would want.

I guess one issue is the accumulation of carbon monoxide if the graphite does ignite and the fact that they could explode both causing mechanical damage to the core and failing this building, unless it were sufficiently pressure resistant. That's certainly one mechanism.

And I'm also concerned not only simply with the containment issue, but --

CHAIRMAN MESERVE: But wouldn't that be helped by it not being pressure retaining -- I mean, that you'd have the capacity to relieve that pressure.

DR. LYMAN: Well, that depends, I guess, on the time, the repetitive ignition -- I'm certainly not an expert in that -- but I would like to see the analysis first that would demonstrate that you don't need what the Commission now believes is required for the existing generation of plants. I think that's a determination that will take much more work than has already been done on this design.

CHAIRMAN MESERVE: I don't want to suggest that we've done that work, prejudged it, I just want to understand the principles of your position here.

DR. LYMAN: And, again, it's not just the containment, but also do you eliminate the containment and at the same reduce the emergency planning zone by a factor of 40 and at the same time reduce the redundancy in safety? I mean, it just sees they are really asking for too much at once. It should be more of an incremental process, and I, as you demonstrate, as you have more confidence in certain aspects of the design, then you get relief in additional areas, but not all in one package.

CHAIRMAN MESERVE: Commissioner Dicus.

COMMISSIONER DICUS: Thank you. Mr. Muntz, your December time frame that you've suggested that you would go to the Board or the Board will make a decision about the Pebble Bed, how firm is that? What kind of delays, how is the project in South Africa that that might --

MR. MUNTZ: That is absolutely firm. That is Exelon's Board and the other investor Boards will consider the detailed feasibility report which has been produced and distributed to the shareholder companies. There's no reason to delay that at all at this point.

The South African Government will also be reviewing the detailed feasibility study, and in our view that is a potential source of delay as the Government considers do we want to go forward with this venture, basically.

COMMISSIONER DICUS: Okay. I think the other question that I want to ask will be very brief here. We've heard what might be some of the barriers to an application for a new license, a new facility, whatever it might be. Excluding economics, Yucca Mountain and other things, I'm interested in whether or not there are other issues you would like to make us aware of that are regulatory in nature, that you have not made us aware of yet?

CHAIRMAN MESERVE: Let me intrude for just a minute. Mr. Redding has indicated that he does have to depart.

MR. REDDING: I'm very sorry.

CHAIRMAN MESERVE: We welcome your joining us here this afternoon.

MR. REDDING: It's my pleasure, and if there are any questions for me, I'd be happy to answer them at another time. My apologies.

CHAIRMAN MESERVE: Thank you very much for joining us.

COMMISSIONER McGAFFIGAN: Mr. Redding and Dr. Magwood made the mistake of actually believing our schedule here, which we of course never do. Excuse me.

CHAIRMAN MESERVE: Was that --

COMMISSIONER DICUS: To anyone here.

MR. MUNTZ: I believe from Exelon and PBMR's point of view, through the interactions that we've had, we've surfaced the issues that we believe will be relevant.

MR. GRECHECK: I would say that from our perspective, I think the issues have come up, and I just want to reiterate again how important an element of certainty is to the process. The more uncertainty there is, the less likely it is that decisions could be made in the near-term when we are faced with having to make decisions about what kind of generation we need to build in order to meet the needs, and the country's energy needs are clear, we know that that needs to be addressed, but as was said before, when you go to the Board and say, "We have a project we want to do", all those uncertainties mount up and you have to understand where we are going. So, we are certainly willing to participate to the maximum extent that we can to try to resolve all those uncertainties, that's the major reason we're embarking on this project now. Even in advance of any recognized need to build a nuclear station, we still think that it's necessary to get into this process now and try to work through the issues and through the procedures that when it actually becomes necessary, there is some element of certainty as to what it will take.

COMMISSIONER DICUS: Dr. Lyman, our staff spoke to us earlier this afternoon about stakeholder interactions. We've heard more about stakeholder interactions. Do you have any impressions that you would like to leave with us about stakeholder interactions?

DR. LYMAN: Yes. I think, in general, over the years there seems to be --

COMMISSIONER DICUS: On this issue.

DR. LYMAN: On this issue in particular, I think that the public -- that the staff is making a very great effort to engage the public and encourage their participation in meetings and workshops. I think the issue really goes beyond what NRC can do and has to do with the resources of the public interest community. You know, we are not well paid, we're small in number, and it's hard to marshall the resources to deal with every issue, the whole myriad of issues that arise in any one area that the NRC covers. So, I have no complaint with the staff's attempt to involve the public, but simply the issues are more institutional in nature.

One concern I do have, it may not apply to this issue because interactions are at a relatively early stage, but the interaction of NEI with the Commission in general, NEI does have -- and the industry do have the resources to sustain a level of commitment that it's hard for the public to match, and that's just a reality of the situation, but the NRC might want to

rethink the level of interaction that it has with NEI and industry people at this point.

COMMISSIONER DICUS: Thank you.

CHAIRMAN MESERVE: Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: I can't let that last go. We have to deal with people who are asking us for licenses and for certifications, and we have to do that, and I appreciate that there are about five people in the public interest groups and it's -- I'm sure it appears unfair combat, but we have to conduct our business, and we encourage people to be involved, and we get great benefit out of it at times. I mean, I think, David, in the revised oversight process, your involvement in some of the safeguards issues has been very useful in keeping us on our toes, even if we don't always agree on everything. So, I appreciate that.

But let me just go back to Mr. Fertel first. We have a model that worked on license renewal, but it took a lot of years of preparation to get to the point where license renewal worked. Calvert Cliffs did come in, what was it, '98 or '99 -- I guess it was '99 -- with their application -- '98 -- but that had been preceded by -- we had an SRP that was in some sort of draft. We decided we wouldn't finalize it but get some experience -- we now have finalized it in 2001. We had had enormous amounts of discussion with industry. NEI had been putting together a template for applications, which you hadn't gotten consensus on, that we now in 2001 do have consensus, but all of that work prior to 1998 helped Duke and Calvert at least get their arms around what an application should include and how the NRC, at least the first order, was going to deal with it.

It seems to me in this case we don't have a lot of that, and one of your suggestions, the ITAAC one, was one that had a short time, but it sounded like you were also essentially asking for us to develop in partnership with you perhaps, as we did in license renewal, an application format for an Early Site Permit, and perhaps, on our part, a standard review plan which we should do ourselves, for evaluating an Early Site Permit. And in the ideal world, I suppose we'd have an application template for a combined operating license which the ITAAC, or an important part of verification for, and we would have a standard review plan for how you would deal with the COL, although that's a little harder because it has all these trees in it as to whether it's referencing an Early Site Permit or referencing a certified design, and presumably must already have some sort of a process for doing certified design, since we have done three of them.

But should we be putting our emphasis at this stage, you know, we face the other folks at the table, who you also represent, but who are saying, "Focus on me, focus on me", and then we have, you know, you also saying "Focus on the process", and I think some of them are saying focus on the process -- Mr. Grecheck is -- and get a process in place with as much predictability as possible. So, if we look at the license renewal model, it did take years to get all those things in place. Is that where our focus should be, and perhaps trying to shorten those years or whatever?

MR. FERTEL: I think, Commissioner, you laid out the program, I think, that we're talking about. We're planning on developing, as I mentioned already, an Early Site Permit guidance for putting together an application. The same thing for COL guidance on our side. And what we'd look to do is engage with the NRC staff to the maximum degree they can to make sure their expectations are being met by the guidance we're developing for the applications. And I think the experience on license renewal -- and it was some very bad experience early on, which we remember with both Northern States and Yankee -- led us down a path where what we saw were the benefits of doing things which brought more certainty. And I think as Gene has said, and John and everybody else, for at least those who don't right now have an application, I think Exelon has a specific plan that they're moving down, and that should continue on whatever track they can proceed on and you can respond to, but I think in parallel with that for fundamentally the rest of the industry that's looking at ALWRs or other types of gas reactors, more certainty to the process adds tremendous value to the decisionmaking, and I think taking into account comments like Ed makes, I just have to offer an observation that from an NEI standpoint, but maybe more from a personal standpoint, I consider myself a member of the public, and I basically think I want to operate reactors as safe as anybody else in this country, including you and David, and that's why I listen to you and David a lot.

So, I don't think having dialogue with anybody from NEI or anybody from the industry, in my mind, undermines the goal of safe operations, it only enhances it. You may add value to things we haven't thought about, and that's wonderful, but that doesn't mean we don't want to operate as safely as possible. So, I just think that's important.

COMMISSIONER McGAFFIGAN: The question, though -- the applications that you're going to come up with, the format for applications for an ESP, for a COL, are you going to submit those as we did in license renewal to us for us to endorse? Isn't that what we did --

MR. FERTEL: I think that would be the intent. That would be the intent, is to engage with the staff, get it to a point where they could endorse it.

COMMISSIONER McGAFFIGAN: Wasn't there a bit of a -- I mean, you also had the SRP to be glancing at to say, "Okay, this is what they're going to judge us against, so this has to be in the application". Is there an SRP effort underway? I should have asked the staff for an Early Site Permit or for a COL, so that you could go out and get comments on? The answer is no. Okay.

It strikes me that that's the way to get some certainty. I mean, if we don't have a standard review plan as to how we're going to review an Early Site Permit application, then that's our bible around here, as I understand it.

MR. FERTEL: In some respects, I'm sure the staff is looking at readiness. What you do for a site permit isn't a lot different than what you did to license a site in the first place.

COMMISSIONER McGAFFIGAN: So it could build off of that.

MR. FERTEL: Yes.

COMMISSIONER McGAFFIGAN: Okay. Dr. Lyman, a lot of your comments were about the Pebble Bed. I guess I'll ask a leading question, knowing the answer. Does that mean that if one of these folks wanted to take one of the certified designs at an existing site, and Advanced Lightwater

Reactor, that would be clean sailing?

DR. LYMAN: Well, my organization does not have a position on that per se. I haven't looked at the certified designs in detail, really, to judge their safety, but the larger issue we see in a wholesale expansion of nuclear power now has to do with the nonproliferation issue and whether society is really ready to support an extension and an expansion of the technology that does produce weapons using the material as a byproduct of its operation. So, in that general sense, I think that issue has to be factored in more to larger policy decisions that society has to make about the expansion of nuclear power on a particular reactor application.

COMMISSIONER McGAFFIGAN: This nation did produce a fair amount of weapons-grade plutonium, but I don't think we ever did it in a lightwater reactor, and it would be a very inefficient way to do it, so I -- but there's no nonproliferation issue in the United States. If we wanted to produce plutonium, which we don't, we're trying to get rid of it, we would know how to do it.

DR. LYMAN: Well, there is a longer-term issue, though, and I don't want to belabor this point, but the growing stockpile of spent fuel with a declining radiation barrier will eventually pose a greater proliferation problem than it does now, and, again, the rest of the world, the issue is prominent as well in a re-examination of nuclear power in this country does have international impacts.

COMMISSIONER McGAFFIGAN: Again, anybody who is -- I won't get into a debate, I'll pass.

CHAIRMAN MESERVE: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Thank you, Mr. Chairman. Mr. Fertel, I want to follow up a little bit on a direction the Chairman started making with his question. When you were giving your opening presentation, you used a quote, "NEI and its membership presumably are fully committed to building new plants".

Well, one of the things that we -- and I mean the five of us on this side of the table -- are grappling with right now is our 2003 budget. And there's a lot of different things that the membership of NEI is talking about in the new plant orders, a lot of ducks in the air, so to speak.

Now, I am a fiscal conservative, and I intend on imposing the same discipline to my review of the budget in 2001 as I will this year. But for the purposes of NEI, there's been a conflict here. In years past, NEI has been very active in working with the Commission saying you've got to reduce the fees, you've got to reduce the amount of money you're spending on various things and impose fiscal discipline into all these things that potentially we may or may not have to grapple with in new plant orders.

And so how -- I only want a more directed answer from you -- how are we as a Commission, given the past history of NEI telling us to keep things down, are going to balance off with all the possible things that you may want from us with new licensing issues in terms of trying to determine where we're going to spend some money in the Fiscal Year 2003 budget?

MR. FERTEL: I think we still want you to balance things off and to be a fiscal conservative and make sure you expend your resources appropriately. So, I don't think the fact that we see new things happening means we want to deter from that approach.

COMMISSIONER MERRIFIELD: But is there a recognition among the membership of NEI that all of these requests come with a cost, and it's possible they're borne by NEI, and that we're going to have to find more money -- and that's not necessarily just finding it out of our current resources, it means more than what we have now.

MR. FERTEL: There is $10 million put in, and we certainly haven't fought the $10 million being put in, so that's an indication that we think more money might be necessary. I think the other thing that I would say is necessary -- and we have said this on the record in testimony and letters to the Commission -- is a harder look at how the money is being spent today because the vast bulk of it is in a lump sum, sort of almost overhead account, the way it's dealt with for license fees, and I think that the more diligent looking at that, Commissioner, you may find that there is money. Now, your problem I don't think is only money, I think it's what Dr. Travers and others and the Chairman spoke about, which is the right resources, the right experience to put on the task that you have. So, I actually think money is only part of the issue, it's the skill and the capability.

For your next fiscal year, two observations I'd make. One is there's some things for sure that are coming up the next fiscal year that I think the people at this table have identified that will happen. There are some things that were discussed that are iffy, they may or they may not happen. And I think you could plan for the sure stuff and you could raise questions on what it would take to take the next step and ask us maybe by when we could get you better information on the iffy things.

The other thing that I said during my comments and I think is true, is that a lot of the uncertainty on our side will clear up over the next three years, but it will stay uncertain and fuzzy over the next three years because companies are trying to make decisions on what they want to do, how they want to do it. There's a lot going on looking at how you actually pull together companies that will do things jointly to move down the road, but that is still cooking. It is still being put together. People are thinking about it, you know, what does it mean -- where is the AP-1000 going to be, where is the Pebble Bed going to be -- a year from now.

COMMISSIONER MERRIFIELD: I appreciate that, and I'll defend the Commission and the staff, and I think we impose great discipline on how we spend money around here, and that we challenge our staff, and they do continue to find ways in which to improve our resources and our efficiencies to make greater use of what we have. We can have a whole debate on that another day, which I think we need not have right now, but I raise this because there is a double-edged sword. The more to which we are conservative in the ways in which we are limiting the amount of money that we are spending, the more difficult it will be to meet the kind of deadlines and expectations that are being raised by the members of NEI. You can't have it both ways, and I just sort of lay that out.

MR. FERTEL: Let me be clear, we don't want to have it both ways, so you need to tell us what you think you need, as the Chairman did in his letter to the Hill, in order to meet the things that we're asking to be

done, and at least let us either tell you we've decided we don't want you to do that anymore or, yeah, we fully support you and we'll help you get those resources. And my comment on efficiency, I think the staff has been very efficient in a lot of things. My comment is almost on how you are accounting for stuff when you look at the license fees charged to licensees and you look at the two bins, one bin is very specific, but it's a small portion.

COMMISSIONER MERRIFIELD: And we can get into the whole issue --

COMMISSIONER McGAFFIGAN: If EPRI were here, all the exemptions -- you know, the number of exemption requests we get from folks is quite large, which pushes everything into the annual fee. The more exemptions we get, the more --

COMMISSIONER MERRIFIELD: This could go on for a long time. I want to refocus on a bullet you had on Slide No. 4 and talk about the four focus areas, one of them being maintaining robust infrastructure for current and future plants, and one of the subjects which is hardware.

Now, given the fact that we, as a nation, really don't have the kind of infrastructure that we had before to manufacture many of the large reactor components, we don't manufacture any steam generators in the United States, for example. How is NEI addressing this matter as it's going forward with a potential for new plants being ordered, and to what extent have you thought about the regulatory implications that might occur from having so many of the larger components potentially being manufactured internationally?

MR. FERTEL: I think going to your comment on how you set priorities given what we're asking for there, similarly within our shop and within the industry, right now the focus on infrastructure is very heavy on human capital, and there's a lot of things happening this year trying to figure out what the human capital needs are over the next decade or more. On the hardware side, we haven't kicked off any aggressive effort, but it was going to be focused on getting the suppliers together and sitting down with them and the construction folks and figuring out where right now you actually do get these resources. I think your comment on the regulatory implications, to be honest, was one that was not prominent in my mind. It may have come up certainly once we started the process and I'll factor it in, but we're probably -- embryonic would be actually further along on the hardware side right now than giving it credit. We are moving aggressively on human capital, and then we're going to kick off something later this year on the hardware side, and I think I'll factor in your comments and keep you informed.

COMMISSIONER MERRIFIELD: Dr. Lyman, I want to go to your Slide No. 6. You, in commenting on the Pebble Bed fuel performance, you stated that the robustness of the fuel is being oversold in that significant fission product release can occur well below fuel degradation temperature.

Now, as the Chairman has mentioned, there's a lot of information that's been provided in the public media and other information has been provided to our staff about this fuel and what it may or may not do. And I'm just wondering if you have anymore meat that you could put on the bones of those statements and upon what you are basing that particular theorem.

DR. LYMAN: Yes, at an ACRS workshop on this last month I showed some of the graphs. The bottom line is that public meetings Exelon is going around saying that the reactor can't meltdown. It's a walkaway safe reactor. It has it's loss-of-coolant accident. The fuel will never reach a temperature at which it's threatened, and that's it, then you don't need a containment, et cetera. But if you look at the actual performance of the fuel from German and from Japanese reactors, you find out that cesium does leak out of the fuel at temperatures which are below -- they are above the 1600 degree Celsius maximum temperature they've defined, but they are well below 2000 degrees which is when the fuel actually starts to degrade and gross failure occurs.

And so then the question -- so this starts occurring at maybe 1700, so the question is, what are the error bars associated with the maximum fuel temperature in accidents and those things. So, I think just looking at the actual data, the public claims being made in the media and other public fora by the licensee are exaggerated. I don't think that helps the debate. I understand that NRC eventually will require that data, but it's going to be a somewhat time-consuming process, and some of that test work, as I said in my presentation, might have to be done, I would think, domestically on the actual fuel which its plants have used for the reactor, which is different from the German fuel which was thorian-based at least in the larger reactor.

COMMISSIONER MERRIFIELD: Thank you, that's helpful. My final question is for Mr. Matzie. In your slides, you discussed moving forward with the IRIS pre-application review in Fiscal Year 2002. We're obviously going to have a lot going on in the work that we're doing in AP-1000, and I was wondering if you had given much thought to the issues of NRC resource implications over the next couple of years in dealing with IRIS vis-a-vis dealing with the resources associated with AP-1000. We do have a limited number of folks around here, and we certainly don't want to rob Peter to pay Paul, and I'm wondering if you've thought about that in the bigger context of all the other things that we have going on underway at the NRC.

DR. MATZIE: Commissioner, yes, we have quite a bit of thought on that. It's very clear within Westinghouse our top priority is AP-1000 licensing on the kind of schedule that I had presented. If it became a real resource limitation, that would be the signal we'd give you, and I'm in fact giving you that now.

On the other hand, we believe the interaction on IRIS will be relatively small for several years. It's more to continue the familiarization, it's more to properly ensure that if we go into testing that, the matrices and the tests we do would be sufficient to give the confidence to the staff. So, IRIS will be low-level of resource requirements probably until around 2005, at which case we believe, or certainly are very hopeful, that all the real AP-1000 licensing would be over.

COMMISSIONER MERRIFIELD: Thank you, Mr. Chairman.

CHAIRMAN MESERVE: Thank you. Mr. Burns has sent me a note to say that he would like to give some further thoughts on his response to one of the questions he was asked about earlier.

MR. BURNS: And I want to slightly amend my answer to Commissioner Merrifield. In paging through Part 52 here during the discussion, I notice there are two provisions, one in the subpart on Early Site Permits and one in the subpart on Design Certifications, which do allow an applicant to reference a design certification application that has been docketed but not

granted, or an Early Site Permit which has been docketed but not granted. And for some reason, we didn't put that into the contents in 52.79, but this is what it says: "An applicant for a construction permit or a combined license may, at its own risk, reference such an application". And so although it does indicate you could do that, when it says "at its own risk", you still have this issue. You don't have issue resolution until that design certification becomes final, or that Early Site Permit becomes final. And, really, I think, in context of the combined operating license, if you have those three going at once, the last one out the door would necessarily be the combined operating license, could not be resolved until those others are done. And so you really don't have a parallel path that I think they all come to resolution at once, but I wanted to make that amendment. For some reason, the subparagraph is buried in sections called "Duration of Certification", which I'm not quite sure why we wound up putting them there ten years ago, but they are in there, so I leave it at that.

CHAIRMAN MESERVE: You mean as an aspect of our regulations that's confusing?

(Laughter.)

I'm shocked. Well, on behalf of the Commission I would like to thank the staff and the stakeholders who have joined us this afternoon for a very informative discussion. You've helped us to frame some of the key issues, and we have learned a lot, and they are issues that I think we will face and it's obvious that you are going to be facing as well, and we look forward to working with all of you. With that, we are adjourned.

(Whereupon, at 4:40 p.m., the meeting of the Commission was concluded.)