

NUCLEAR REGULATORY COMMISSION
BRIEFING ON LICENSE RENEWAL PROGRAM
AND POWER UPRATE REVIEW ACTIVITIES

JULY 10, 2002

P R O C E E D I N G S

CHAIRMAN RICHARD MESERVE: Good morning.

On behalf of the Commission, I would like to welcome you to today's briefing by the Office of Nuclear Reactor Regulation on two important programs, License Renewal and Power Upgrades.

Nuclear Power Reactor licensees have undertaken two major initiatives to increase the economic value of their plants. The first is the renewal of a plant's operating license for an additional 20 years beyond the original 40-year term, as allowed by the Atomic Energy Act. And the second is increasing the license power at which the plant is permitted to operate.

The NRC must review applications for license renewal and power upgrades to ensure the continued protection of public health and safety. For license renewal, this involves verifying the licensee has programs in place to manage the effects of aging over the period of the extended license so as to maintain the licensing basis of the plant.

For power upgrades, the staff must be able to conclude that adequate safety margins will exist at the increased power, in part by reviewing the results of the licensee's analysis of a variety of transients and actions to ensure that regulatory limits are not exceeded.

We will hear this morning about accomplishments to date, the challenges that may lie ahead, and plans to improve the effectiveness and efficiency of both programs while still maintaining the necessary technical rigor that these reviews demand.

Dr. Travers, you may proceed.

DR. WILLIAM TRAVERS: Thank you, Mr. Chairman. Good morning. As you've indicated, the staff is here today to present the Commission with an update on two very important programs that are on-going, namely license renewal and power upgrades. Since our last meeting with you, our program in both of these programs has continued actively. The staff and the industry, we believe, have effectively utilized NRC generic license renewal documents. And as a result, five nuclear power plant units, over the past year, have been approved for license renewal.

The staff currently has six applications representing ten units under review and continues to anticipate a considerable level of industry activity in this area. We have, with respect to power upgrade reviews, assigned a very high priority, consistent with the Commission direction in this area.

We have, over the past year, completed a number of several of a kind first of reviews, including the largest power upgrades to date, 20 percent at the Clinton facility, PWR, and 7.5 percent at A&O2 PWR. Collectively, the power upgrades that the staff has approved over the course of calendar year 2001 represent an increase in electrical generating capacity of about 1100 megawatts electric, which is equivalent, as you know, to the capacity of a single large nuclear power plant.

What I'll do now is turn to Sam Collins, Director of the Office of Nuclear Reactor Regulation, to introduce the staff who are going to be making the presentations. First license renewal, and we'll continue through with power upgrades, if that's agreeable, and then respond to your questions. Thank you.

MR. SAMUEL COLLINS: Thank you, Bill. Good morning, Commissioners, Chairman.

I have with us at the table today two teams. One team representing license renewal. That team is composed of Dr. Pao-Tsin Kuo and Frank Gillespie, representing the broader participants in the process.

To my left is the power upgrade program team of Mohammed Shuaibi and John Zwolinski. I would also like to acknowledge that this is clearly a combined effort that has cross-cutting input from other offices, including research and OGC. And we rely heavily on the regional programs to support the implementation of these two significant efforts.

The purpose of today's briefing, as Dr. Travers mentioned, is to update the Commission on the status of the programs.

The Commission has provided the staff guidance and various documents on the implementation of these programs, including the clear message that both of these programs are of high priority in the product lines defined by NOR. In the license renewal area there is a SECY paper 01-0074, it's dated April of 2001, where the five issues were identified for continued dialogue with the industry. We will address those five issues during the course of the presentation today.

In the associated SRM from that SECY paper, the Commission asked to be kept informed of the process and including progress on the generic aging lessons learned demonstration project, and the many significant issues that arise during implementation of that project. And we will discuss those during the course of the presentation today.

Generally, the results are that the guidance documents have been issued. We have completed the generic aging lessons learned demonstration project, and we have issued three license renewals.

We have met strategic and operational goals while maintaining safety. These efforts in license renewal are linked to the strategic plan in the reactor arena. Under maintaining safety, there's a specific strategy that acknowledges we will ensure that safety is maintained as licenses are renewed by ensuring that aging effects will be adequately managed and that licensing bases related to the present plant design and operation will be maintained.

It's also an associated goal in the area of making our decisions more efficient and effective. We will cover some of that today. Our operating plan assumes a 33 percent efficiency in this fiscal year of quoted performance of license renewal programs.

Today to discuss the status of the license renewal, I will ask Dr. Pao-Tsin Kuo to proceed. Before that, though, I would like to acknowledge the Commission's decision to allow the program office to sign out and to complete those noncontested license renewal actions. And the staff appreciates that support, including the efficiency and effectiveness that's achieved by that support.

MR. PAO-TSIN KUO: Thank you, Sam.

Good morning, Mr. Chairman and Commissioners, I'm Pao-Tsin Kuo, the program Director of license renewal and environmental impacts program. Today I will brief the Commission on the status of the license renewal.

Before I start my briefing, I would like to express my appreciation to groups that have supported license renewal activities. Internally, the NRR regional offices have conducted site inspections to support the review of license applications. The Office of General Counsel has reviewed and have commented on all of these staff projects on licensing applications. And the Office of Nuclear Reactor Research has provided input to the staff guidance document and support for public meetings.

And finally, the Advisory Committee on Reactor Safeguards has reviewed and provided comments on guidance documents and the license applications.

Externally, the applicants, the Nuclear Energy Institute, and public interest groups have all attended numerous meetings and have commented on the license renewal process.

In particular, the Union of Concerned Scientists completed and have forwarded to the staff a thorough analysis of the station blackout issue. And this analysis was very useful to the staff in reaching its conclusion on this issue.

I would like to thank all -- and all levels of NRC management, in particular, the License Renewal Committee, for their continued participation and support of license renewal activities.

During this briefing, I would like to describe the status of the four areas indicated in the slide.

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The staff has met all the goals set out in this strategic and operating plan. The staff issued all renewal licenses within 24 months and increased its efficiencies in reviewing the application by 30 percent.

As part of the license renewal communication plant, the staff just published a license renewal brochure last week.

To date the Commission has renewed operating licenses for ten nuclear reactors, which added over about 8,000 megawatt of capacity for an additional 20 years.

The staff has not identified any policy issues related to license renewal. However, we'll inform the Commission promptly if there's any emerging issues arise.

The staff has identified the potential challenges concerning the efficiency in reviewing certain license renewal applications. I will discuss this later in my presentation.

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The staff issued guidance document identified in SECY 01-0074, approval to publish generic lessons renewal guidance in July 2001.

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The demonstration project on the issue of use of Generic Aging Lessons Learned or GALL, in preparing and reviewing the license renewal application, was successfully completed in October 2001. The staff and the industry are incorporating the lessons learned during the demonstration project into guidance documents for use in the future license renewal activities. The first renewal application that incorporated these lessons learned was submitted to the staff, to NRC, in January 2002.

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In SECY 01-007, the staff noted that it had agreed it was the NEI to continue a dialogue with industry on five issues related to license renewal. The staff has since resolved all of these issues and the plans to document its conclusions as interim staff guidance.

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As technical issues arise during the review of license renewal applications, the staff discusses these issues with the industry and stakeholders and issue staff interim guidance. Two examples of such issues that were resolved are aging management review of concrete structures and treated structures and components for the station blackout event required by the license renewal rule.

While industry was not in total agreement with the staff on some of these issues, it has agreed to follow the staff guidance. The staff plans to incorporate these staff positions into the generic guidance documents.

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By completing its review of these five applications, the staff met the strategic and operating plan goals.

Next slide please ...

The staff is currently reviewing six applications identified in this slide.

Applications for multiple units and multiple sites will result in several staff products.

For example, the North Anna and Surry license renewal applications will result in one staff safety evaluation report, two environmental impact statements, and four renewal licenses.

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In addition to the six applications in the review, eighteen applications are expected to be submitted within the next three years. Two more in fiscal year 2002, and five more in '03, six more in '04, and five more in '05.

Over the next three years, the staff will be reviewing simultaneously between 10 to 14 license renewal applications.

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The staff identified potential challenges concerning the most efficient means for reviewing a single application for plants of different designs. While the license renewal of each design is well established, efficiency of reviews and processing of safety evaluation reports will need to be evaluated. Exemption requests from the requirement for 20 years of operating experience will need to be evaluated for different plan designs at the same site to ensure that the underlying purpose of the regulation is met.

Browns Ferry, Unit 1 is a different license renewal challenge. The overlapping licensing activities at Browns Ferry, Unit 1 will make this challenging to establish the basis against which the review of the license renewal application will be performed.

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To ensure the license renewal process remains stable and predictable, the staff has scheduled a license renewal workshop in October 2002. The purpose of the workshop is to discuss and disseminate lessons learned from the demonstration project and recent reviews of license renewal applications.

The staff is accumulating this staff guidance into some -- plans to evaluate revising the generic guidance document.

This concludes my presentation.

I would be happy to answer any questions.

MR. SAMUEL COLLINS: Thank you, P.T.

Chairman, with your approval, we'll move on to the uprate presentation, and then reserve time at the end for questions.

CHAIRMAN RICHARD MESERVE: I think we ought to do that. Thank you.

MR. SAMUEL COLLINS: As an introduction to the power uprate status, I would like to acknowledge that there are two papers provided to the Commission, SECY 02-0106 and SECY 02-0115, the latest being the June 27, 2002, provide the basis for much of the information that will be discussed today.

There have been semi-annual updates to the Commission provided in March 2002. The next is scheduled for September 2002.

We have also received guidance from the Commission in the form of a con SECY 01-0001 power uprate applications that was dated May 24th, 2001. And that has assigned high priority to these product lines.

It also indicated that we should conduct the methodology in the most effective and efficient manner, we should be consistent with the agency's four performance goals, and we should meet these requirements while placing emphasis on maintaining safety. All those are consistent with our evolving program and it will be discussed today during the course of the presentation.

Today we would like to provide the status of these on-going initiatives, as well as the power uprate review efforts themselves. We will cover the process improvement initiatives, the results of those to date, and the integrated approach to improving the process, including the greater approach to the reviews, the communication initiatives, and the integration with our centralized work planning initiatives in the Office of Nuclear Reactor Regulation.

I would like to acknowledge that in fiscal year '02, power uprates are being tracked in the NRR operating plan as licensing actions, consistent with a commission guidance for high priority in fiscal year '03. They will be tracked as a separate product line, and therefore, be discernable in their performance goals.

I would like to reintroduce Mohammed Shuaibi, who is the lead project manager for the power uprate program.

MR. MOHAMMED SHUAIBI: Thank you Sam.

Again, my name is Mohammed Shuaibi. I'm here to talk about the efforts related to the power uprate program.

Before I begin, I would like to also acknowledge the support that the NRR team has received from NRC stakeholders including OGC, ACRS, and our regional offices. In addition, I would like to recognize the contributions from external stakeholders in providing valuable, constructive comments in the development of guidance for measurement on uncertainty recapture power uprates and ongoing efforts in extended power uprates.

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More specifically today I will cover the status of power uprate applications, including approved, pending, and expected applications and the contribution of those applications to the nation's electric generating capacity.

I will discuss completed and ongoing initiatives to improve the power uprate review process consistent with the agency's four performance goals, maintaining safety, increasing public confidence, improving internal effectiveness and efficiency, and reducing unnecessary burden. As Sam stated, much of what I'm going to cover today was included in two recent Commission papers. Those were SECY 02-0106, which was dated June 14, 2002, and SECY 02-0115, which was dated June 27, 2002.

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By way of background, I have listed the three types of power uprates on this slide. First we have measurement uncertainty recapture power uprates, which are uprates of less than 2 percent -- achieved by implementation of enhanced water flow techniques, which reduce the uncertainty in power measurement. These are available to all plants.

Next we have stretch power uprates. These uprates are up to about 7 percent and are within the original design capacity of the plant. The magnitude of uprate a plant may achieve and still be within the stretch category is plant specific. It depends on the margins that that plant has.

These uprates do not usually require major modifications to plants. Although approved over 50 stretch power uprates, and these uprates are also available to both boiling water reactors and pressurized water reactor plants.

The last one is extended power uprates. These are greater than stretch and over approved or extended power uprates up to 20 percent for some power boiling water reactor plants. These require significant modification. And the majority of the work today in the extended power uprate area has been for boiling water reactor plants. We have approved one extended power uprate for a pressurized water reactor, but that was for a seven and half percent power uprate.

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This chart shows the number of approved, pending and expected power uprate applications. Today we've approved 81 power uprates. To emphasize the recent interest in power uprates, I would like to note that in the last 12 months, we've approved 24 power uprates. This is more than a quarter of the total that we've approved in the last 30 years.

Of the 24, 14 were for measurement uncertainty recapture power uprates, one was for a stretch, and nine were for extended power uprates. We currently have 12 power uprates under review, and we're expecting 35 more over the next 5 years. Based on ongoing work by vendors in this area, we expect the number to be even greater than that.

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This chart shows the contribution of power uprates in the nation's electric generating capacity. The chart shows that power uprates have safely added about 3800 megawatts electric. Last year alone, power uprates added more than 1,390 megawatts electric.

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Consistent with your direction for May of 2001, we've assigned power uprates a high priority. We consider power uprates among the most significant licensing actions and are reviewing them in a manner that does not unnecessarily delay their completion.

We're working with stakeholders to improve the power uprate review process to ensure that process does not impose needless impediments. We would like to emphasize that safety is our highest priority and that power uprates review process has and will continue to maintain safety.

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Types of activities in the power uprate program are included on this slide.

We have reviews of plant-specific applications, reviews of generic topical reports, and process improvement efforts. Again, consistent with your direction, all our efforts related to power uprates have been assigned a high priority.

We're currently budgeted for all ongoing work in this area, including the efforts described in the two Commission papers.

Going forward, should we encounter any unforeseen technical issues that would necessitate prioritization or delay of activities in the power uprate area, the order of priority that we would use is listed on this slide. That is, that we would give highest priority to plant-specific applications with generic topical reports and process improvement efforts coming next in that order. This is consistent with your direction, again for May of 2001 to not delay implementation of power uprates at nuclear plants.

Should any of the work in this area be delayed, we would, of course, inform you of that.

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Going forward, for planning and scheduling purposes, we're targeting completion of staff reviews in six months for measurement uncertainty recapture power uprates, nine months for stretch power uprates, and twelve months for extended power uprates.

To highlight progress in this area, I want to cover historical data on boiling water reactor extended power uprates. Our first extended power uprate for boiling water reactor took 26 months to complete. The next one took 14. Those were both back in the 1998 time frame.

More recently, we completed five extended power uprates reviews in 2001, and those took about one year, twelve months.

This year in 2002, we completed three boiling water reactor extended uprates, and those were done well within twelve months.

While we put these schedules up on the slide and share those with you, I would like to emphasize that safety is our highest priority and that should we encounter any unique issues with plant-specific applications, we will take the time necessary to resolve these issues in a manner that maintains safety.

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I would like to turn to power uprate initiatives that we have completed.

In the past year, we've improved communications related to power uprates. We've launched a power uprate web site, conducted a session at the regulatory information conference, and we conducted two public workshops, one on measurement uncertainty recapture power uprates, and one on extended power uprates.

We also issued a regulatory issue summary 2002-03, which provided guidance on the content of measurement uncertainty

recapture power uprate applications. We've improved the predictability of schedules by enhancing management oversight of the projects.

I would like to add that the NRR management team is well aware of the importance of power uprates and has been fully engaged in the process.

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We have several initiatives currently underway for further improvement. A new initiative in response to our senior management and external stakeholders is the development of a review standard for extended power uprates. We believe that the review standard will improve the completeness, consistency, and predictability of power uprate reviews.

The review standard will include a clearer definition of scope and a road map to existing guidance to be used in power uprate reviews. It will also include model safety evaluations to enhance the staff's documentation of power uprate reviews.

This effort includes a review and, as necessary, update of existing guidance, including the standard review plan. We believe that the development of the review standard is consistent with and goes beyond the recommendation of the ACRS to develop a standard review plan for power uprates.

We have also undertaken an assessment of past reviews and lessons learned and plan to use the results of this assessment in the development of the review standard.

In addition and consistent with the high priority assigned to power uprate reviews, we are implementing more effective means of utilizing resources. To the extent possible, we will utilize the same set of resources, the same set of experienced reviewers for power uprate reviews. This should improve the efficiency and consistency of power uprate reviews. It should also improve communications and coordination among reviewers.

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We are developing an inspection procedure to improve the effectiveness of inspections as related to power uprates. For about a year now, we have been establishing schedules with intermediate milestones, we have been managing the projects to ensure that any problems are identified and addressed early in the process. This approach has been successful in keeping reviews on schedule. We are evaluating our tools for further enhancement.

We are also working with our centralized work planning staff to ensure that project management tools and other products developed for power uprates are consistent with broader efforts to optimize NRR's processes with respect to the agency's four performance goals.

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In conclusion, we have approved 81 power uprates, which have safely added over 3800 megawatts electric to the nation's electric generating capacity. In the past 12 twelve months alone, we have approved over a quarter of these uprates, including first of a kind applications for extended power uprates in the 10 to 20 percent range.

We are working with our internal and external stakeholders to improve the power uprate review process. We have completed several initiatives and have seen progress as a result. We are continuing our efforts to improve the process.

I would like to emphasize that while we undertake these efforts, safety will remain paramount and the quality of the staff's products will continue at a high level.

We have learned a lot from experiences and successes in other areas, including the license renewal process. And we intend to use those to guide us as we improve the power uprate processes. And, of course, we will keep you informed of the status of the power uprate program through updates to the CTM and semi-annual status reports.

This concludes my presentation.

DR. WILLIAM TRAVERS: Thank you, Mohammed.

Mr. Chairman, that completes the staff's presentation on these two programs. Thank you.

CHAIRMAN RICHARD MESERVE: I would like to thank you for a very helpful presentation, and I in particular would like to complement the staff for its efforts both with regard to license renewal and power uprates. These are very important programs. And as your presentation revealed, they seem to be running very efficiently and smoothly, and really without a great deal of contention associated them, and I think that's a credit to staff who have been working in this area that this is really going so smoothly.

As you indicated in the slide, that you will have as many as 14 applications for license renewal that are going to be pending -- I think it was in fiscal year 2004, according to your slide.

DR. WILLIAM TRAVERS: Right.

CHAIRMAN RICHARD MESERVE: Are you comfortable that you have sufficient resources to be able to do this? I don't mean just budgetary resources.

I know when you got to discussing the power uprates, you talk about one of the ways in which you're going to ensure efficiencies there is that you make sure you use experienced reviewers to be engaged in that process. And you are going to have the challenge, it seems to me, when you get to the license renewals, when you have that many things proceeding simultaneously, that you are going to have to stretch out to members of the staff, perhaps, that are not been engaged in this process.

How are you dealing with that problem?

MR. PAO-TSIN KUO: Well, it is indeed a challenge. From time to time we will have new reviewers come on board to do the license renewal.

What we have done, is that at the beginning of each license renewal application, we have a training session for both the staff reviewers and sometimes contractors. And we will go through what we have done before. And we will present or explain the guidance documents that we have, and try to lead this renewal -- new renewals or new contracts into the process.

And we, during the course of review, certainly, we will pay more attention to that, so that after one or two reviews, these new reviewers will become experienced reviewers. That's what we have been doing.

As far as budget is concerned, we budget our resources on the basis of the plans expected to come in. So in that sense, we really don't have any problem. Of course, if there are additional plans to come in unexpectedly, we will need to go back and revisit the budget.

CHAIRMAN RICHARD MESERVE: Do you see a risk of that? That there may be some unexpected applications?

MR. PAO-TSIN KUO: Not to my knowledge so far.

MR. SAMUEL COLLINS: I think NEI has been coordinating that to a large extent. As you know in the old 405 budget cycle, we have some adjustments that have been taken into consideration. In this methodology, what we have tried to do is to maintain the schedule and to work the efficiencies in order to provide the existing staff to do more reviews within that same existing schedule, rather than shorten the schedule and by using marginal types of reviews in place of contractors.

And I would like to acknowledge also that the industry's submittals to us are, to a large extent, are improving. That's a process from learning from each other as well as using the guidance. That helps us to maintain the schedule also.

MR. PAO-TSIN KUO: That's correct. We have started using the fruit of our guidance development, the GALL reports and the SRP.

The first application that incorporated these lessons learned was submitted to us in January 2002, this year. And from now on the application should be much more standardized.

CHAIRMAN RICHARD MESERVE: You mentioned the challenge that you anticipate that you will confront with regards to Browns Ferry. Obviously, they are in a recovery mode now to bring that plant back up on-line, and apparently, as I understand it, you anticipate you will receive a license renewal application that will be processed at the same time.

MR. PAO-TSIN KUO: For all three units.

CHAIRMAN RICHARD MESERVE: All three units?

MR. PAO-TSIN KUO: Right.

MR. SAMUEL COLLINS: Power uprate too.

CHAIRMAN RICHARD MESERVE: And a power uprate too?

MR. FRANK GILLESPIE: Browns Ferry did come in. It came in and kind of explained their schedule. And we have overlapping schedules where they are both going through a recovery on Unit 1, proposed power uprates on 2 and 3, power uprate on Unit 1 being proposed, I think at a different schedule than 2 and 3. And restart.

And as P.T. said, what is the real licensing basis? I mean, it may not be something we can physically go out and look at. It may

only be on paper at the point they submit their license renewal application.

So it's going to be a unique challenge, and it's different than any other situation we have had.

CHAIRMAN RICHARD MESERVE: Do you anticipate this to be staggered in a fashion that you will be far enough down along in the recovery basis that you will have a licensing foundation for doing the license renewal?

How is this phased?

MR. PAO-TSIN KUO: If I recall, Browns Ferry license renewal application is going to come in in December '03. And power uprate for Units 2 and 3, I think, is coming this month.

And power uprate for Unit 1 will be sometime -- I forgot the months, but in 2005. So in during our license renewal, the power uprate will be ongoing. And then we don't have the power uprate application for Unit 1 at the same time.

So it's a question of what is the current licensing basis for Unit 1 at a time we review the license renewal application.

MR. SAMUEL COLLINS: Chairman, I think it's important to note that the intent of TBA is to upgrade Unit 1, so that the licensing basis for Unit 1, 2, and 3 are the same. So the model for Unit 1 will be Units 2 and 3. So that makes it clearer for us as far as their goal is concerned. And as long as the recovery of plant is consistent with those goals, then we should have a pretty good target for sighting into the design basis of the plan.

CHAIRMAN RICHARD MESERVE: Are there opportunities, actually, for some efficiencies from the fact you are doing all of these at one time? I mean in terms of inspections, activities, and so forth that go for multiple purposes at one time?

MR. PAO-TSIN KUO: Well, we generally for our license renewal, we generally have three scheduling inspections during the period of 25 months. The first one is the scoping inspection, the second one is agent management review, and the third one is optional, depending on where we are at the time. We will have different inspections yes.

MR. SAMUEL COLLINS: Mr. Chairman, as you know, they are bundling license renewal efforts now too. So we are counting applications now instead of specific units. And there are efficiencies with the bundling.

CHAIRMAN RICHARD MESERVE: I didn't mean the bundling of units. I meant the fact that you have several different licensing activities for Unit 1 that are underway simultaneously. They are focused on somewhat different things, but there may be some overlaps in this.

It seems to me you have severe inspection activities that are going to have to be undertaken there. And whether there are ways that those can be coupled so that inspection activities, for example, that you have underway in terms of ensuring the licensing basis then helps you in terms of your being able to do the license renewal, for example.

MR. SAMUEL COLLINS: I really would anticipate that, and we have had discussions with Region 2. And Louise Rayor (ph.), who is the region administrator, would indicate that they have the experience from Units 2 and 3 that would result in efficiencies in Unit 1. Although it will still be a challenge, recovery of the unit.

MR. JOHN ZWOLINSKI: The fact that the licensee will adopt the -- in the next month or so for extended power uprate for 2 and 3, our goal would be to complete that in the next year. That would, in so many words, put that issue behind us for those two units. The unknown is the power uprate that will come in maybe in a couple, three years.

But as far as inspection and efficiencies in the near term, I think this is a first of a kind using a topical report. We just recently improved. For that power uprate we want to ensure that we have done quality review, maintain safety beyond a focus. And it's not clear that we know what areas to inspect until we really get into the application.

I anticipate the inspection will mimic what we have been doing in Region, and we will build from that.

CHAIRMAN RICHARD MESERVE: I have just one question in the power uprate area. Will your review standard that you anticipate that you have under development, deal with risk issues?

I know you have received some ACRS comment, particularly with regard to the power uprate in Brunswick in which they commented on the PRA was submitted but wasn't clear how thoroughly it was reviewed, but was relied upon to some extent. And you don't require that they be risk-based applications but licensees are submitting risk information. Are you going to be dealing with that issue in the review standard?

MR. MOHAMMED SHUAIBI: We will be looking at all the areas that we review for power uprates, including the risk area. We will also looking at all the CRS comments, including the comments on review of risk information. We will consider all that as part of the development of the power uprate review standard.

MR. JOHN ZWOLINSKI: And that was incorporated in the general electric topical report that we just recently approved that will be referenced by Browns Ferry.

So we indeed will get into the risk area.

MR. SAMUEL COLLINS: I think some of these questions will come up this afternoon. As you know, some of them are broader and they deal specifically with the quality of licensee PRAs and our role in those PRAs.

Commissioner Dicus?

COMMISSIONER GRETA DICUS: I want to follow up on the license renewal that the Chairman first questioned about how you are resourcing yourself to be able to deal with the number of renewals that you have down the line. And the follow-up question that I want to ask has to do with are you also anticipating, because we do have the aging work force and turnover rate, et cetera, that as you bring these new reviewers on that you are dealing with, down the road what it looks like?

MR. PAO-TSIN KUO: Yes. Like I said earlier, we do plan to train the new reviewers and new contractors along the way.

Right now we have six applications in the review. We have no problem at all. We can deal with. So even a few more, we can deal with.

But when it comes to 10 or 14 with the current staffing, we will have to use new reviewers or new contractors. So we have planned to train all these new reviewers and the new contractors. It's just a matter of getting into it and training them.

MR. FRANK GILLESPIE: Commissioner Dicus, I can say, because we just had an ACRS meeting, and we had some people presenting, and technical reviewers presenting for the first time. So we have already started going down the path of introducing more junior staff and mixing with the senior staff as part of the reviewers. So it's not a precipitous cliff we see ourselves falling off of.

And the training is all based on the GALL and the SRP. So we brought some stability to the process. So, we actually have the ability to lead people through it with a mixed team of junior and senior people. And we have the back stock of senior PM.

So we are actively, actively working that right now with a mix of people.

COMMISSIONER GRETA DICUS: That's good to know. I'm going to put the same question to power uprates, because you have quite a few more coming in. You have got a lot on your plate. Do you have enough resources?

And do you see something down the road that you need to be doing something similar?

MR. MOHAMMED SHUAIBI: We currently believe we have enough resources to do the power uprates. We are developing models so that we could come up with resource estimates over time, and we will have more detailed breakdowns of when the resources are going to be needed based on surveys that we are doing. But we currently believe that we are budgeted for the power uprates.

COMMISSIONER GRETA DICUS: When might you have that information?

MR. MOHAMMED SHUAIBI: We are committed to have that by the end of the year.

MR. JOHN ZWOLINSKI: As part of our effort in review standards for standard power uprate, we are leveraging that particular product to essentially provide a legacy file, as far as that transition of some of those that are not going to be with us in the next five to ten years, as the aging work force moves on to retirement.

So I think we are building into our process much of what Frank just described as the way the process is working in the license renewal area. And I think we will see that mature over the next year.

MR. FRANK GILLESPIE: Commissioner Dicus, we didn't answer your second answer, and I don't want to leave it unanswered. As far as our planning process, in our presentation was kind of a bar graph. Well, using Microsoft Project Manager, that breaks down by individual organizational unit. And we are getting a pretty good handle on how long it takes to review a certain section of GALL.

And now that we have gone through six of the units, in addition, this becomes very, very critical, so I'm going to amplify it a little bit. In the license renewal power uprates, we use the same systems organizations, we use the same engineering organizations as we're looking at the Bessell headed Davis-Besse and steam generators. So the need for this level of planning, we have appreciated early in order to make the schedules to set aside resources literally a year in advance.

MR. SAMUEL COLLINS: Including at some point, when we become a little more sophisticated with centralized work planning, we will be tracking the technology resources that are available, not only the level of effort, but the type of expertise that's being used, what how much marginal there is and what's available.

COMMISSIONER GRETA DICUS: Good. I just want to be checking we are not going to run out of steam down the road.

One more question on uprates. We have already mentioned the fact that the ACRS has had some comments and, of course, there's the four review questions that they have raised, which I'm sure we will get into this afternoon. But, at the same time, it looks like for each one of those, there is a pathway to resolution. I just wondered if there was anything else you wanted to say about them this morning, the four review questions that they have?

They have to do with some concerns about the lack of adequate documentation and the safety evaluation reports and things along those lines.

MR. JOHN ZWOLINSKI: We are in the process of responding to that particular letter. We have met informally with members of the ACRS. And I believe that we are much more in lock step than we may have been six months ago.

I would anticipate that you will hear some of that discussed this afternoon also.

COMMISSIONER GRETA DICUS: I just wanted to give you the opportunity to say anything you wanted to say about it this morning. But we can do it this afternoon.

MR. JOHN ZWOLINSKI: When we first received constructive comments from the ACRS, we took them to heart, and we feel we addressed them as our product lines evolved over the past year.

So I think not only have we matured in our reviews, we have also been sensitive to some of the comments that ACRS has provided. I think the area that we had the most conflict was in the area of the SRP update. And we have now re-evaluated what was best for our entire program, and thus the review standard concept evolved. And that will, we believe, be very responsive to the ACRS.

In fact, we will be talking to them tomorrow afternoon about that particular subject. Primarily in concept, because we are only initiating that right now.

MR. SAMUEL COLLINS: We agree with the formal comments.

COMMISSIONER GRETA DICUS: That's the point I was getting to. Generally you agree, with maybe a few differences here and there?

MR. SAMUEL COLLINS: I don't necessarily agree with some of the anecdotal comments, but I do agree with the formal comments, and that was the thrust of the question. And we will take those under advisement. We will have an official response.

It always gets to be a matter of degree sometimes of how deep you go, how much independent analysis is enough. We are operating on a product line, so we try to define that ahead of time and keep that margin fairly small in order to reach performance goals. There can always be more done, which is more into the research area, which is supporting information. And we seek that from our partners in research whenever it's appropriate.

COMMISSIONER GRETA DICUS: Thank you. That's all.

CHAIRMAN RICHARD MESERVE: Commissioner Diaz.

COMMISSIONER NILS DIAZ: Thank you, Mr. Chairman.

I always wonder when I see the description of two highly technical programs presented without any technical details, what am I missing?

Am I missing something? No?

MR. SAMUEL COLLINS: What, are we not satisfying?

COMMISSIONER NILS DIAZ: Everything is squeaky clean?

It might be some time of interest, at least to me, when you do the next review to go back to how these things are done, the environmental facts, the goal, and pick out some key technical issues that keep appearing in different areas, because it certainly will make the Commission aware of what things you are facing.

And it certainly will keep me entertained.

Now, having said that, let me go back to something that my fellow Commissioner has been hacking. But let me take a little different tack on it.

The power uprate reviews is really a highly technical review. It is, to me, it's really people have to be very, very good at systems and system relationships. You are approaching certain limits. So you really need to be up-to-date on all of those things that are important in the technology of nuclear power. License renewal, in the same manner but in a totally different way. You are not looking now at approaching a limit or maintaining a limit.

It seems to me that these two areas provide a tremendous opportunity for us to train people in the agencies so there would be synergies not only between the license renewal and power uprates, but between potential new applications. Because these are very good training grounds.

So rather than become very complacent and getting the best people doing these things all the time, I think the staff should consider whether we want to cross train and bring them in and out, because it is a challenging job, and it would certainly provide us with a strong background when we go to some different areas.

And having said that, I don't have any further questions.

CHAIRMAN RICHARD MESERVE: Commissioner McGaffigan?

COMMISSIONER EDWARD MCGAFFIGAN: You caught me off balance.

I'm going to do license renewal first. And I just want to try to clarify the current goal for completing license renewals where there is no hearing. In light of the fact that the Commission has delegated to the director of NRR the ability to approve that, are we still trying to keep to all the schedules we kept in the past? My recollection is it was that it was 575 days to get the SER and the FEIS completed in the little bit of time phase here to look at it, although they have been doing very well to do things in parallel. Have those core times changed and slipped?

Because some of the charts you showed there looked to me like they were longer than 21 months or so that I would think would be your overall goal.

MR. PAO-TSIN KUO: It's my fault. I failed to mention that we are planning to reduce the noncontested license review for up to 22 months.

COMMISSIONER EDWARD MCGAFFIGAN: And the 575 day for the SER and the FEIS that's the standard?

MR. PAO-TSIN KUO: Yes, sir.

COMMISSIONER EDWARD MCGAFFIGAN: Okay. On resources, the document that we get and the public doesn't, there was some internal reprogramming to give you extra resources this year, and not unexpectedly to given all the additional work you had and the simultaneous applications underway, and I think that that means the reprogramming effort works. But it strikes me that we have had to put -- compared to what we were proposing, you know, last September in our budget or proposing to execute last September for this year's budget, there are extra resources that have gone in, and I think we need to acknowledge that.

MR. FRANK GILLESPIE: There were.

Schedules moved and slipped, some people came in early.

COMMISSIONER EDWARD MCGAFFIGAN: People coming in earlier was the primary reason. And I think we just have to be ready to do that.

Turning to power uprates, there are some technical issues, as Commissioner Diaz talked about.

One that I was impressed with in the staff was the debate -- I think there was a DPV, a very high quality DPV filed on large transient testing. And then there was a high quality review. I think Chris Grimes, who used to head the license renewal effort, headed that review and they made some recommendations.

Could you update me as to, in general -- and there was a member of ACRS who also had a sort of decanting view about the need for large transient testing. The staff -- as I understand the state of play, the staff made the judgment that the original judgment was right, but they needed to document it better, that the cost did not -- that the benefits were not commensurate with the cost if large transient testing was required as a routine matter.

Do I have it approximately right, or you can clarify? Whichever.

MR. MOHAMMED SHUAIBI: That's exactly right. We are going to be looking at that as part of the development of the review standards so that we can document or provide criteria for how we would evaluate that in the future, though.

COMMISSIONER EDWARD MCGAFFIGAN: And I had it more or less right in terms of where things stand?

MR. JOHN ZWOLINSKI: As we go forward with the review standard in this area, we are reviewing where do we stand with large transient testing, we would start in this area and what would be the criteria to require as part of our review that large transient testing be performed. So we would need to identify the value added and identify criteria that would lead us to a pathway. That would be the appropriate thing to the regulator to want to see demonstrated.

COMMISSIONER EDWARD MCGAFFIGAN: I think you are on the right path. I partly raise this only because I do want to recognize -- I don't remember the name of the DPV file, but I thought it was a very high quality effort that that person did. I think the staff did a very high quality job.

I think in general the DPV process has been used over the last year in many -- half dozen different ways in very, very usefully and not just in NRR but in other offices, and I'm impressed by it. And I encourage the staff to bring those concerns forward. And I think the process is working.

Another area that ACRS expressed concern about, we have had one previous conversation on and I am going to give Sam the chance to update, is with regard to his office's support for confirmatory research on high burn up fuel. There was a March 14th letter, again, that's connected to power uprates, because the thrust of the letter was that the staff has argued that the fuel does not have -- it does have sufficient integrity based on its confidence and engineering judgment. And noting that a research program had been instituted to confirm that judgment.

And then the thrust of the letter was now NRR -- support for this, so we won't have the confirmation of the engineering judgement. Where do you stand with research in terms of supporting this high burn up fuel research that they felt was important for confirming an engineering judgment, which, in turn is important for power uprate reviews?

MR. SAMUEL COLLINS: I am going to ask Gary Holahan to respond. We took that letter to heart. And John Johnson, the deputy office director talked to ACRS and talked to research. And we did a fairly detailed review of this issue. And I think we are prepared to respond.

Gary?

MR. GARY HOLAHAN: Gary Holahan, NRR. I think there are two parallel activities that are going on that will bring this issue to a conclusion. One is, if you will remember the staff sent a high burn up fuel plan to the Commission back in -- I think it was 1998.

COMMISSIONER EDWARD MCGAFFIGAN: I memorized it at the time.

MR. GARY HOLAHAN: In working with the office of research, I think we have come to a common conclusion that that plan needs to be updated. So the office of research, with NRR's input is working on an updated plan. I think that will, in a way, clarify the situation.

In addition, one thing that is going to focus our attention is, just a few months ago, NEI and EPRI sent in a topical report asking for our review and approval of certain aspects of high burn up fuel, particularly, the rod ejection type issues.

And we are developing basically an interoffice review plan to support that review activity. And I think this will clarify the NRR review role and the research supporting technical activities.

So as those two things roll out in the next few months, I think the situation will be clarified.

MR. SAMUEL COLLINS: The earlier position, if I recall it correctly, and, Gary, you can correct me if necessary, is that the position in front of the Commission, documented position, was that any further efforts to go beyond the current approved burn up would be supported by industry research and industry information. And that's the position that we adhered to when we work with our partners in search on further effort by user need.

COMMISSIONER EDWARD MCGAFFIGAN: But just to clarify, their concern is between 55 gigawatt days per metric ton heavy metal and 62 gigawatts days.

And there's a search program somewhere lurking there that is going to confirm engineering judgment about the integrity of fuel in power uprate circumstances for that burn up range?

MR. GARY HOLAHAN: I think the answer is yes. But when the program was originally developed, I don't think it had power uprate in mind. But I think that, you know, the range of parameters and activities will cover the higher power levels as well.

COMMISSIONER EDWARD MCGAFFIGAN: Okay. Thank you. We may hear from -- this is presumably another area, you know, where you and ACRS will have a chance to make sure that you are on the same page.

MR. MOHAMMED SHUAIBI: Commissioner, can we all go back to your earlier question on large transient testing? I just want to clarify a point. As we developed a criteria for that, once we are done, once we developed a criteria for that, we do plan on going

back and looking to see, make sure that what we did was right. So we are developing criteria right now. That's part of the review standard effort. Because of that we will go back and we will confirm.

COMMISSIONER EDWARD MCGAFFIGAN: I will just conclude. I think I had one more question written down, but I can't find it in my scratchings. But I do think I will finish where the chairman started. I think this has been a tremendously successful effort in both areas. I think it's an untold story, the 1390 megawatts electric that we have approved in the last 12 months and the prospect of a couple thousand more megawatts being approved in the not too distant future. That's a very large nuclear unit that we essentially brought on line last year.

The EIA at DOE might want to pay attention to these two programs, because they generally put out prospects for the nuclear component of the nation's electrical capacity that are unduly pessimistic. We have about a quarter of the units. In two months we will have a quarter of the units, existing 104 units having applied license renewal or received it. And the prospect is, as the Chairman has said repeatedly in speeches, that the vast preponderance, if not all of the existing units will apply for renewal, and will continue. And there's opportunities for significant uprates.

So the prospects for this part of the industry's contribution to the electric power grid are quite robust. Then, of course, we have the possibility of new units, which we have had separate meetings about. But I think it's a real untold success story both for us and the efficiency of our processes and for the industry.

I'll conclude on that.

CHAIRMAN RICHARD MESERVE: I would like to thank you very much. This has been a very helpful briefing. Again, I commend the staff for their efforts in the areas we have discussed this morning. With that, we are adjourned.