REPORT OF THE NUCLEAR ENERGY COMMITTEE

This report summarizes Nuclear Regulatory Commission (NRC) activities relating to new nuclear power plant initiatives. The time frame covered by this report is June 1, 2006 to June 30, 2007.

Recent NRC Activity Related to New Reactor Licensing

Loan Guarantee Program Under EPAct

Recent NRC Judicial Decisions

RECENT NRC ACTIVITY RELATED TO NEW REACTOR LICENSING

I. INTRODUCTION

Momentum in NRC activity related to new plant initiatives, spurred by the Energy Policy Act of 2005 (EPAct) incentives, continues.[1] Activities of the NRC in support of, and preparation for, these new nuclear power plant initiatives fall into three major categories: (1) activities related to Early Site Permits (ESPs); (2) activities related to Design Certification; and (3) activities in preparation for reviewing new combined license (COL) applications.

II. EARLY SITE PERMITS

The past year saw continued progress by the NRC in the issuance and review of ESPs. The purpose of the ESP process is to allow applicants to have the safety, environmental protection, and emergency preparedness aspects of prospective sites for new plants reviewed independent of a specific nuclear plant design.[2] The ESP, which is initially valid for no less than ten and no more than twenty years, "also allows for a limited work authorization to perform non-safety site preparation activities, subject to redress, in advance of issuance of a [COL]."[3]

A. ESPs Issued

The NRC approved issuance of ESPs to Exelon Generating Company, LLC (Exelon) and System Energy Resources, Inc. (SERI), a subsidiary of Entergy Corporation, on March 8, 2007 and April 27, 2007, respectively. Exelon, which had submitted its initial ESP application to the NRC on September 25, 2003, was issued an ESP for the Clinton site, approximately six miles east of the city of Clinton, Illinois, "co-located with the existing Clinton Power Station."[4] The Clinton ESP supports a future application to construct and operate additional nuclear power reactors at the ESP site with a total nuclear generating capacity of up to 6800 megawatts thermal (MWt).[5] SERI, which had submitted its initial ESP application to the NRC on October 16, 2003, was issued an ESP for the Grand Gulf site located near Port Gibson, Mississippi, approximately twenty five miles south of Vicksburg, Mississippi, and adjacent to the existing Grand Gulf

1. This section of the report does not detail EPAct incentives, but rather focuses solely on specific NRC activity.

2. *Nuclear Power Plant Licensing Process*, BACKGROUNDER ON NUCLEAR POWER PLANT LICENSING PROCESS (NRC, Washington, D.C.) July 2005, http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/licensing-process-bg.html [hereinafter *Nuclear Power Plant*].

3. *Id.*

4. EXELON GENERATION CO., LLC, EARLY SITE PERMIT APPLICATION (2003), http://www.nrc.gov/reactors/new-licensing/esp/Clinton.html.

5. *Id. See also* NUCLEAR REGULATORY COMM'N, SAFETY EVALUATION REPORT FOR AN EARLY SITE PERMIT (ESP) AT THE EXELON GENERATION COMPANY, LLC (EGC) ESP SITE (NUREG-1844) (2006), http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1844 [hereinafter CLINTON SER].

Nuclear Station operated by Entergy Operations, Inc.[6] The SERI ESP supports a future application to construct and operate additional nuclear unit(s) at the ESP site, with total nuclear generating capacity of up to 8600 MWt, with a maximum 4300 MWt per unit.[7]

B. Pending ESP Applications

There are currently two pending ESP applications, one submitted by Dominion Nuclear North Anna, LLC for the North Anna ESP site, and the other by Southern Nuclear Operating Company (SNC) for property located near the Vogtle nuclear power plant about twenty three miles southeast of Augusta, Georgia.

The Dominion application is currently before the Atomic Safety and Licensing Board (ASLB), which held evidentiary hearings to consider issues relevant to the ESP in Spring 2007. A decision by the ASLB is expected in August 2007, with a final decision by the NRC following in December 2007.[8]

SNC submitted its ESP application for the Vogtle site on August 15, 2006. On September 19, 2006, the NRC notified SNC of its acceptance of the Vogtle ESP application and commencement of its detailed comprehensive review of the application.[9] SNC subsequently modified its application on November 13, 2006, bringing the proposed new plant in conformance with the orientation proposed by other nuclear utilities who were considering construction of multiple new reactor plants of the same type proposed in the Vogtle ESP application.[10] The notice of availability for the Draft Environmental Impact Statement (EIS) has been scheduled for July 7, 2007.[11]

III. DESIGN CERTIFICATION

Momentum also continued in the NRC design certification process for new nuclear plant design.[12] Reactors that have received final design approval from the NRC in recent years include Westinghouse Electric Company's AP600 and AP1000 designs, certified in 1999 and 2006, respectively, and GE Nuclear Energy's U.S. Advanced Boiling Water Reactor (ABWR) design, certified in 1997.[13] Although no additional reactor designs have been certified since

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6. SYSTEM ENERGY RESOURCES, INC., EARLY SITE PERMIT APPLICATION (2003), http://www.nrc.gov/reactors/new-licensing/esp/grand-gulf.html.

7. *Id.* NUCLEAR REGULATORY COMM'N, SAFETY EVALUATION OF EARLY SITE PERMIT APPLICATION IN THE MATTER OF SYSTEM ENERGY RESOURCES, INC., A SUBSIDIARY OF ENTERGY CORP., FOR THE GRAND GULF EARLY SITE PERMIT SITE (NUREG–1840) (2006), http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1840 [hereinafter GRAND GULF SER].

8. *In re* Dominion Nuclear North Anna, LLC, Docket No. 52-008-ESP (NRC Aug. 2, 2007), http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2007/2007-23cli.pdf.

9. Transmittal Letter from Southern Nuclear Operating Company to the NRC (Nov. 13, 1006), http://adamswebsearch.nrc.gov/scripts/securelogin.pl, ID=063330112; SOUTHERN NUCLEAR OPERATING CO., VOGTLE EARLY SITE PERMIT APPLICATION–REVISION 1 (2006).

10. *Id.*

11. NUCLEAR REGULATORY COMM'N, SOUTHERN NUCLEAR OPERATING CO. APPLICATION FOR THE VOGTLE ESP SITE: REVIEW SCHEDULE (2007), http://www.nrc.gov/reactors/new-licensing/esp/vogtle.html.

12. *Nuclear Power Plant*, *supra* note 2.

13. NUCLEAR REGULATORY COMM'N, DESIGN CERTIFICATION APPLICATION REVIEW – AP1000 (2007), http://www.nrc.gov/reactors/new-licensing/design-cert/ap1000.html.

January 2006, the NRC has continued to make progress on pending applications and pre-applications.

A. Application Reviews

General Electric Company submitted an application for final design approval and standard design certification for the Economic Simplified Boiling Water Reactor (ESBWR) on August 24, 2005.[14] "The [ESBWR] is a 4500 MWt reactor that uses natural circulation for normal operation and has passive safety features."[15] Certification review of the ESBWR is in progress; NRC Staff expects to issue a Final Safety Evaluation Report and final design approval in January 2009.[16]

B. Pre-Application Reviews

1. AREVA EPR

On February 8, 2005, Framatome ANP (FANP), a subsidiary of AREVA, formally requested pre-application review of the Evolutionary Power Reactor (EPR) reactor design.[17] The EPR is a 4500 MWt (1600 MWe) pressurized water reactor designed by FANP.[18]

The EPR pre-application process is now entering Phase 2.[19] The NRC has held a series of public meetings and has issued several reports, the last of which was issued on October 31, 2006.[20]

2. Westinghouse International Reactor Innovative and Secure

The International Reactor Innovative and Secure (IRIS) design is a 335 MWe advanced light water reactor design. Westinghouse submitted a letter on September 7, 2006, providing some details of its plan to submit a design certification application. In this letter, the company outlined a proposed schedule for pre-application activities and restated its intent to begin the formal design certification process in 2010.[21]

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14. Letter from General Electric Company to the NRC (Aug. 24, 2005) http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML052450245.

15. *Id. See also* NUCLEAR REGULATORY COMM'N, DESIGN CERTIFICATION APPLICATION REVIEW – ESBWR (2007), http://www.nrc.gov/reactors/new-licensing/design-cert/esbwr.html.

16. NUCLEAR REGULATORY COMM'N, SEMIANNUAL UPDATE OF THE STATUS OF NEW REACTOR LICENSING ACTIVITIES (2007), http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2007/secy2007-0039/enclosure1.pdf.

17. NUCLEAR REGULATORY COMM'N, PRE-APPLICATION REVIEW OF THE EPR (2005), http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=051950003 [hereinafter PRE-APPLICATION REVIEW OF THE EPR].

18. *Id.*

19. PRE-APPLICATION REVIEW OF THE EPR, *supra* note 17.

20. *See* NUCLEAR REGULATORY COMM'N, DESIGN CERTIFICATION PRE-APPLICATION REVIEW – U.S. EPR, http://www.nrc.gov/reactors/new-licensing/design-cert/epr.html (last visited Sept. 10, 2007).

21. NUCLEAR REGULATORY COMM'N, SEMIANNUAL UPDATE OF THE STATUS OF NEW REACTOR LICENSING ACTIVITIES (2007), http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2007/secy2007-0039/enclosure1.pdf [hereinafter SEMIANNUAL UPDATE].

3. Pebble Bed Modular Reactor (PBMR)

"By letter dated February 18, 2004, PBMR, Pty. LTD, notified the NRC that it intends to apply for design certification of the once the detailed design for a PBMR demonstration plant to be built in South Africa[] is sufficiently completed."[22] On June 13, 2006 and July 3, 2006, PBMR, Pty. submitted pre-application white papers describing the company's approach to the development of a full scope probabilistic risk assessment for the PBMR design and the selection of licensing basis events for the PBMR design, respectively.[23] On August 28, 2006, and December 13, 2006, PBMR, Pty. submitted pre-application white papers that described its approaches to the classification of structures, systems, and components (SSCs) and Defense-in-Depth, respectively, for the PBMR.[24] With the submittal of the December 13, 2006 white paper, PBMR, Pty. indicated it had completed action on the four white papers agreed upon for review and requested NRC guidance on the next steps forward.

4. U.S. APWR

On June 20, 2006, Mitsubishi Heavy Industries, Ltd. formally announced its intent to pursue a Design Certification for a 4451 MWt pressurized water reactor (US-APWR).[25] By letter dated August 31, 2006, Mitsubishi Heavy Industries, Ltd. formally requested a pre-application review of the US-APWR.[26] On October 31, 2006, Mitsubishi Heavy Industries, Ltd. submitted the US-APWR Design Description. Certification review of the US-APWR is in progress, with several public meetings held and topical reports submitted.[27]

IV. PREPARATIONS FOR NEW COL APPLICATIONS

An applicant may apply for a COL pursuant to 10 C.F.R. Part 52.[28] An application for a COL must contain essentially the same information required for an operating license issued under 10 C.F.R. Part 50 and specify the inspections, tests, and analyses that the applicant must perform, as well as acceptance criteria that are necessary to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license and applicable regulations.[29] If an application does not reference an ESP and design certification, then the NRC reviews the environmental and technical aspects of

22. NUCLEAR REGULATORY COMM'N, DESIGN CERTIFICATION PRE-APPLICATION REVIEW – PBMR (2007), http://www.nrc.gov/reactors/new-licensing/design-cert/pbmr.html.

23. Letter from PBMR, Pty. LTD to Nuclear Regulatory Commission (June 13, 2006), http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=061710135; PBMR, US DESIGN CERTIFICATION: LICENSING BASIS EVENT SELECTION FOR THE PEBBLE BED MODULAR REACTOR (2006), http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=061930368.

24. SEMMIANNUAL UPDATE, *supra* note 21.

25. NUCLEAR REGULATORY COMM'N, DESIGN CERTIFICATION PRE-APPLICATION REVIEW – US-APWR, http://www.nrc.gov/reactors/new-licensing/design-cert/apwr.html [hereinafter PRE-APPLICATION REVIEW US-APWR].

26. *Id.*

27. PRE-APPLICATION REVIEW US-APWR, *supra* note 25.

28. *See* 10 C.F.R. § 52.1–52.303 (2007).

29. *Nuclear Power Plant*, *supra* note 2.

the application.[30] In addition, there is a mandatory hearing for a COL.[31] After the NRC issues a COL, it "authorizes operation of the facility only after verifying that the licensee [has] completed [all] required inspections, tests, and analyses and that acceptance criteria [have been] met."[32]

During the period from June 2006 through May 2007, the NRC continued its process of preparing for the COL applications it expects to be filed by the end of 2007. Preparations completed or begun during this period included issuance of a final rule updating 10 C.F.R. Part 52, changes to limited work authorization rules, development of a COL Regulatory Guide, and creation of the Office of New Reactors.

A. Update to 10 C.F.R. Part 52

On April 11, 2007, the NRC approved a final rule amending 10 C.F.R. Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."[33] The NRC originally published a proposed rule to update 10 C.F.R. Part 52 on July 3, 2003.[34] However, after public comments identified concerns over whether the proposed rule adequately addressed the relationship between 10 C.F.R. Part 50, "Domestic Licensing of Production and Utilization Facilities," which establishes the traditional two-step licensing process for nuclear power plants, and 10 C.F.R. Part 52, which establishes alternative licensing processes, the NRC issued a revised proposed rule on March 13, 2006, superseding the July 3, 2003 proposed rule.[35] The final rule makes substantial changes to 10 C.F.R. Part 52 to clarify the various requirements that apply to each of the NRC's major alternative licensing processes.

With respect to 10 C.F.R. Part 52, subpart A, "Early Site Permits," the NRC made two changes concerning the finality provided by an ESP. The final rule requires that an applicant referencing an ESP in a COL application update the emergency preparedness information provided at the ESP stage "and discuss whether the updated information materially changes the bases for compliance with applicable NRC requirements."[36] In addition, the final rule clarifies that an applicant referencing an ESP must submit any new and significant information related to the environmental impacts of construction and operation of the facility

30. *Id.*

31. *Nuclear Power Plant*, *supra* note 2.

32. *Id.* at 3.

33. Memorandum from Annette L. Vietti-Cook, Secretary, NRC, to Luis A. Reyes, Executive Director of Operations, NRC (Apr. 11, 2007), http://www.nrc.gov/reading-rm/doc-collections/commission/srm/meet/2007/m20070411.html. The April 11, 2007 Commission voting record approved, subject to several Commission changes, the final rule that the NRC staff submitted to the Commission for approval in SECY-06-0220. Memorandum from Luis A. Reyes, Executive Director for Operations, NRC, to NRC Commissioners (Oct. 31, 2006), http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2006/secy2006-0220/2006-0220scy.html [hereinafter SECY-06-0220]. Citations to the final rule are to SECY-06-0220 (unless the Commission's approval revised the NRC Staff version of the final rule) as the final rule has not yet been published in the Federal Register.

34. Proposed Rule, *Early Site Permits, Standard Design Certifications, and Combined Licenses for Nuclear Power Plants*, 68 Fed. Reg. 40,026 (July 3, 2003).

35. Proposed Rule, *Licenses, Certifications, and Approvals For Nuclear Power Plants*, 71 Fed. Reg. 12,782 (Mar. 13, 2006).

36. 10 C.F.R. § 52.39(b) (2007).

that were resolved in the ESP proceeding, and must also describe the process used to identify such new and significant information.[37] Both of these matters would fall within the scope of issues that may be litigated in a proceeding involving the issuance of a COL that references the ESP.[38]

A significant amendment involving 10 C.F.R. Part 52, subpart B, "Standard Design Certifications," relates to changes made to the special backfit protections that limited the NRC's ability to make generic changes to design certification rules.[39] Under the previous 10 C.F.R. Part 52, the NRC could modify, rescind, or impose new requirements on the certification only if the change was: (1) necessary for compliance with the NRC regulations "applicable and in effect at the time the certification was issued," or (2) "necessary to provide adequate protection of the public health and safety or the common defense and security."[40] In addition to the compliance and adequate protection situations, the recent changes to 10 C.F.R. Part 52 allow the NRC to issue an amendment to an existing design certification rule if the change: (1) "[r]educes unnecessary regulatory burden and maintains protection to public health and safety and the common defense and security;" (2) "[p]rovides the detailed design information to be verified under those inspections, tests, analyses, and acceptance criteria (ITAAC) which are directed at certification information (i.e., design acceptance criteria);" (3) "[i]s necessary to correct material errors in the certification information;" (4) "[s]ubstantially increases overall safety, reliability, or security of facility design, construction, or operation, and the direct and indirect costs of implementation of the rule change are justified in view of this increased safety, reliability, or security;" or (5) "[c]ontributes to increased standardization of the certification information."[41]

Another change to 10 C.F.R. Part 52 involves the completion of ITAAC under a COL. The NRC added a requirement that "no later than 1 year after issuance of the [COL] or at the start of construction,"[42] a licensee must submit to the NRC a schedule for completing the "inspections, tests, or analyses in the ITAAC."[43] The NRC also added a requirement that the licensee notify the NRC when required inspections, tests, and analyses in the ITAAC are completed, and clarified that this notification must contain sufficient information to demonstrate that the acceptance criteria for the ITAAC were met.[44] The NRC explained that the term "sufficient information" means, at a minimum, a summary description of the basis for the licensee's conclusion that the inspections, tests, or analyses have been performed and that the prescribed acceptance criteria have been met.[45]

The 10 C.F.R. Part 52 rulemaking also resulted in changes to 10 C.F.R. Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of

37. 10 C.F.R. § 51.50(c)(1)(iii)-(iv) (2007).
38. 10 C.F.R. § 52.39(c)(1)(iv)-(v) (2007).
39. 10 C.F.R. § 52.63 (2007).
40. 10 C.F.R. § 52.63(a)(1) (2007).
41. 10 C.F.R. § 52.63(a)(1)(iii)-(vii) (2007).
42. 10 C.F.R. § 52.99(a) (2007).
43. *Id.*
44. SECY-06-0220, *supra* note 33.
45. *Id.*

Orders."[46] The NRC revised its rules concerning the filing of the applications to provide for early consideration and a partial early decision on site suitability issues associated with an application for a COL by allowing COL applications to be submitted in two parts, with the environmental information submitted in one part and the remaining information submitted in a second part.[47] The NRC also revised its rules concerning initial decisions in contested proceedings by removing the automatic stay for Commission review provision with respect to issuances of facility construction permits and operating licenses in the current rule, and also declined to extend the "automatic stay" provisions to ESPs and COLs.[48] The NRC also made changes to ensure that there is maximum flexibility in the conduct of mandatory hearings. Specifically, the NRC eliminated all references to findings made by the presiding officer concerning uncontested issues[49] and clarified that the separation of functions rule has no applicability to uncontested proceedings or uncontested issues in contested proceedings.[50]

B. Changes to Limited Work Authorization Rules

In response to the 2006 Part 52 proposed rule, industry comments urged the NRC to make substantial changes to the limited work authorization (LWA) process, "in order to minimize the time interval between an applicant's decision to proceed with a [COL] application, and the start of commercial operation."[51] Upon consideration of the industry comments, the NRC prepared a supplemental proposed rule to revise the requirements for an LWA and preparation activities at prospective nuclear power plant sites.[52] The final LWA rule narrows the scope of activities requiring permission from the NRC in the form of an LWA by eliminating the concept of "commencement of construction" formerly described in 10 C.F.R. § 50.10(c) and the authorization formerly described in § 50.10(e)(1).[53] Instead, under the final LWA rule, NRC authorization would only be required before undertaking activities that have a reasonable nexus to radiological health and safety and/or common defense and security for which regulatory oversight is necessary and/or most effective in ensuring reasonable assurance of adequate protection to public health and safety or common defense and security.[54] For example, under the final LWA rule, NRC approval is no longer needed for activities such as excavation, site clearing, transmission line

46. SECY-06-0220, *supra* note 33.

47. *Id.*

48. SECY-06-0220, *supra* note 33.

49. *Id.*

50. SECY-06-0220, *supra* note 33.

51. *See* Memorandum from Luis A. Reyes, Executive Director for Operations, NRC, to NRC Commissioners (Feb. 7, 2007), http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2007/secy2007-0030/2007-0030scy.pdf [hereinafter SECY-07-0030].

52. *See* NUCLEAR REGULATORY COMM'N, COMMISSION VOTING RECORD: FINAL RULEMAKING ON LIMITED WORK AUTHORIZATIONS (2007), http://www.nrc.gov/reading-rm/doc-collections/commission/cvr/2007/2007-0030vtr.pdf; Memorandum from Annette L. Vietti-Cook, Secretary, NRC, to Luis A. Reyes, Executive Director for Operations, NRC (Apr. 17, 2007), http://www.nrc.gov/reading-rm/doc-collections/commission/srm/meet/2007/m20070417b.html.

53. *See* SECY-07-0030, *supra* note 51.

54. *Id.*.

routing, and road building.[55] In addition, construction of certain structures, systems, and components not essential to public health and safety or common defense and security may also proceed without NRC review or approval.[56] Although the redefinition of "construction" will result in fewer activities requiring NRC permission, it also defines certain activities (such as the driving of piles) that are currently excluded from the regulatory definition of construction as construction requiring such NRC review and approval.[57] The final rule also makes changes to the LWA process by allowing for an expedited approval for certain activities in advance of the issuance of a COL.[58] However, the final rule does not allow an applicant for an ESP to submit its LWA application in advance of the underlying ESP application, and therefore is not permitted to take advantage of the expedited approval procedures.[59]

C. COL Regulatory Guide

On September 1, 2006, the NRC made available for comment a draft regulatory guide for COL applications.[60] Comments were requested by October 20, 2006. Most portions of the final regulatory guide are currently available on the NRC website. The NRC anticipates formal publication of the final regulatory guide soon now that the update to 10 C.F.R. 52 is complete.[61]

D. Office of New Reactors

On July 24, 2006, the NRC announced that it was reorganizing its Office of Nuclear Reactor Regulation (NRR) to create an Office of New Reactors (NRO). The NRO is responsible for licensing and program oversight of new reactor activities, while the NRR has retained responsibility for licensing and program oversight for current operating reactor activities. On August 3, 2006, the NRC announced that Bill Borchardt, formerly Deputy Director of the Office of Nuclear Security and Incidence Response, had been appointed as Director of the NRO, effective upon official establishment of such office.[62] The Deputy Director of the NRO is Gary Holahan.[63]

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55. SECY-07-0030, *supra* note 51.

56. *Id.*

57. SECY-07-0030, *supra* note 51.

58. *Id.*

59. SECY-07-0030, *supra* note 51.

60. NUCLEAR REGULATORY COMM'N, COMBINED LICENSE APPLICATION GUIDANCE, http://www.nrc.gov/reactors/new-licensing/col-appl-guide.html (last visited Sept. 23, 2007) [hereinafter COL GUIDANCE].

61. *Id.*

62. NUCLEAR REGULATORY COMM'N, NRC NAMES DIRECTORS FOR NEW REACTORS (2006), http://www.nrc.gov/reading-rm/doc-collections/news/2006/06-099.html.

63. NUCLEAR REGULATORY COMM'N, OFFICE OF NEW REACTORS, http://www.nrc.gov/about-nrc/organization/nrrfuncdesc.html (last visited September 17, 2007).

LOAN GUARANTEE PROGRAM UNDER EPACT

I. TITLE XVII OF THE ENERGY POLICY ACT OF 2005

Title XVII of the Energy Policy Act of 2005 (EPAct)[64] provided loan guarantee benefits to certain energy technologies, including new nuclear power plants. The loan guarantee program is to be implemented and administered by the Department of Energy (DOE).

A. Title XVII

The Loan Guarantee Program contemplated by Title XVII was intended to promote the commercialization of various greenhouse gas mitigation technologies not yet mature enough to attract debt financing in the private sector without credit support. Toward this objective, Title XVII empowers the Secretary of Energy to authorize loan guarantees backing debt obligations of eligible projects with the full faith and credit of the United States government.[65] Eligible projects include advanced nuclear power facilities, advanced fossil energy (including coal gasification), renewable energy, and hydrogen fuel cell technology. [66]

Loan guarantees may be made if "the Secretary determines that there is [a] reasonable prospect of repayment of the principal and interest on the obligation by the borrower."[67] The maximum loan guarantee amount is 80% of eligible project costs, with debt maturity as long as thirty years.[68] The language provides that debt guaranteed under Title XVII shall not be "subordinate to other financing."[69]

Title XVII draws upon the Federal Credit Reform Act of 1990 (FCRA) to define the costs to the government of providing a loan guarantee. [70] Chief among these is the "subsidy cost." Subsidy cost is defined as the net present value of anticipated governmental outlays in support of underlying loan obligations, less anticipated recoveries from the loans, determined on a probabilistic basis based on the particular loans in question.[71] Absent a congressional appropriation that covers subsidy cost, such costs would be paid by the borrower.

B. 2006 DOE Guidelines for Title XVII Loan Guarantees

In August 2006, the DOE issued a solicitation for projects eligible under Title XVII in a pilot process that excluded large nuclear or IGCC projects and

64. Energy Policy Act of 2005, Pub. L. No. 109-58, §§ 1701-1704, 119 Stat. 594 (2005).

65. *Id.*

66. Energy Policy Act of 2005 §§ 1701-1704.

67. *Id.* § 1702(d)(1).

68. Energy Policy Act 2005 §§ 1701-1704.

69. *Id.* § 1702(d)(3). Separately, Title XVII provides that "[t]he rights of the Secretary, with respect to any property acquired pursuant to a guarantee or related agreements, shall be superior to the rights of any other person with respect to the property." Energy Policy Act 2005 § 1702(g)(2)(B).

70. *Id.* §§ 1701-1704.

71. 2 U.S.C § 661a(5)(c) (2000).

comprised $2 billion in loan guarantees and that was accompanied by a set of guidelines. [72]

The 2006 guidelines provided DOE's interpretations of key provisions of Title XVII, including:

- *Guarantee loan amount limited* – In addition to the legislative cap of 80% of eligible project cost, the guidelines also imposed additional limits. "The amount of the loan guarantee does not exceed 80 percent of the total face value of the loan or other debt obligation of the project, or [applicant] provides sufficient evidence to support a guarantee exceeding 80 percent (but in no event 100 percent)" [73]

- *Subordination* – "The guaranteed loan is not subordinate to any loan or other debt obligation for the project not part of the Guaranteed Obligations and is in a first lien position regarding all assets of the project and all collateral security pledged."[74]

- *No stripping* – "The guaranteed portion of a loan must not be separated from or 'stripped' from the non-guaranteed portion of the loan and resold in the secondary debt market."[75]

- *Subsidy Cost* – Loan applications include "[a]n estimate of the amount of the Subsidy Cost for the project, including a description of the methodology used for this calculation and any supporting documentation."[76]

C. 2007 Congressional Appropriations

The Loan Guarantee program received its first funding under a continuing resolution enacted into law in February 2007.[77] Provisions included coverage of administrative expenses for the Loan Guarantee Program Office and loan guarantee authority up to $4 billion.[78]

The FY 2008 DOE budget request for Loan Guarantee authority is $9 billion applicable to advanced nuclear projects, among other technologies.[79]

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72. U.S. DEP'T OF ENERGY, LOAN GUARANTEE SOLICITATION ANNOUNCEMENT (2006), http://www.lgprogram.energy.gov/Solicitationfinal.pdf [hereinafter LOAN GUARANTEE SOLICITATION ANNOUNCEMENT].

73. *Id.* at 30.

74. LOAN GUARANTEE SOLICITATION ANNOUNCEMENT, *supra* note 72, at 31.

75. *Id.* at 30-31.

76. LOAN GUARANTEE SOLICITATION ANNOUNCEMENT, *supra* note 72, at 22.

77. Revised Continuing Appropriations Resolution, 2007, Pub. L. No. 110-5, § 101, 121 Stat. 8 (2007).

78. *Id.*

79. DEP'T OF ENERGY, THE BUDGET FOR FISCAL YEAR 2008, APPENDIX 377 (2007), http://www.gpoaccess.gov/usbudget/fy08/pdf/appendix/doe.pdf.

D. Concerns in Congress

The DOE was criticized by the Government Accountability Office (GAO) in a hearing before the House Energy and Commerce Subcommittee on Energy and Air Quality in April 2007.[80] The GAO was concerned that the DOE had commenced work on the Loan Guarantee program in 2006, prior to having received needed appropriations. The GAO also urged that the DOE complete the rulemaking process before making any loan guarantees.[81]

Conversely, Senator Pete Domenici (R-NM) and others regularly criticized the administration for moving too deliberately through the summer of 2007 and interpreting Title XVII too restrictively.[82] On the House side, on May 3, 2007, Chairman John Dingell (D-MI) and ranking members of the House Energy and Commerce Committee urged the administration to abandon the limits on guaranteed loans as a percentage of total debt.[83]

E. 2007 DOE NOPR

The DOE issued a Notice of Proposed Rulemaking (NOPR) on May 10, 2007, published in the Federal Register on May 16, 2007.[84] Among other things, the NOPR provided that final regulations would be issued following a public comment period through July 2, 2007.[85]

The NOPR reflected many of the interpretations in the August 2006 guidelines, with some refinements. In particular, the NOPR relaxed the limitation on loan guarantees from 80% to 90% of project debt, again subject to an overall cap equal to 80% of eligible project cost.[86]

F. Industry Comments on DOE implementation of Title XVII

Industry stakeholders—primarily prospective borrowers and lenders under the Loan Guarantee program—have commented on the 2006 DOE guidelines and the 2007 NOPR in a variety of settings, including a public meeting conducted by the DOE on June 15, 2007, and comments filed in early July

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80. *Observations on Actions to Implement the New Loan Guarantee Program for Innovative Technologies of 2007 Before the H. Comm. on Energy and Air Quality, H. Comm. on Energy and Commerce*, 110th Cong. (2007) (statement of James C. Cosgrove, Acting Director, Natural Resources and Environment), http://energycommerce.house.gov/cmte_mtgs/110-eaq-hrg.042407.Cosgrove-testimony.pdf [hereinafter Cosgrove].

81. *Id.* Importantly, however, the GAO also concluded in April 2007 that section 1702(b)(1) of EPAct 2005 confers upon the DOE the authority to extend loan guarantees absent specific congressional appropriations, as would ordinarily be required under the FCRA, in circumstances where borrowers paid the cost of the obligation. Cosgrove, *supra* note 80, at n.1.

82. Press Release, Senator Pete Domenici, Following OMB Commitment, Domenici and Bipartisan Group of Senators Urge Stronger DOE Loan Guarantee Program (Aug. 13, 2007), http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=235362&Month=8&Year=2007.

83. Letter from House Committee on Energy and Commerce to the President of the United States (May 3, 2007), http://energycommerce.house.gov/Press_110/110- tr.050307.Pres.EnergyPolicyAct.pdf.

84. Loan Guarantees for Projects that Employ Innovative Technologies, 72 Fed. Reg. 27,471, 27,471-27,488 (May 16, 2007) (to be codified at 10 C.F.R. pt. 609) [hereinafter Loan Guarantees].

85. *Id.* at 27,472.

86. Loan Guarantees, *supra* note 84, at 27,476.

2007.[87] These comments have focused on three threshold issues that are generally seen as contrary to the intent of the legislation: (i) limits on the amount of guaranteed debt; (ii) subordination of non-guaranteed debt; and (iii) prohibition on "stripping" of debt into components for the capital markets.[88]

The NOPR limits guaranteed loans to 80% of eligible project costs and to 90% of total project debt.[89] While this limit is an increase over the 2006 guidelines, it remains more restrictive than the legislation and requires projects to obtain non-guaranteed debt.

The 2007 NOPR, like the 2006 guidelines, effectively requires that non-guaranteed debt be subordinated to guaranteed debt. [90]

The 2007 NOPR stipulates that guaranteed creditors must also participate in providing non-guaranteed debt without the right to "strip" the non-guaranteed piece for sale to other lenders.[91]

Industry comments have noted concerns about the three requirements discussed above, including:

- The non-guaranteed debt may not be available in the commercial markets.[92]

- In order to comply with these requirements, borrowers may resort to measures that will undermine, if not defeat, the requirements, including collateralization of non-guaranteed debt though equity commitments, third party support, or debt service reserve fund requirements (just as "non-recourse" project finance loans may contain implicit recourse provisions).[93]

- The no-stripping provision clashes with the realities of commercial lending markets, where the well-established market in guaranteed debt may not be available for the new bundled hybrid instrument consisting of the guaranteed debt and the unsecured, non-guaranteed debt.[94]

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87. Among numerous others, Constellation Energy Group, Inc., Entergy Corporation, Exelon Corporation, and NRG Energy, Inc. submitted a joint written response to the proposed loan guarantee NOPR on July 2, 2007, with particular focus on implications for advanced nuclear energy facilities. CONSTELLATION ENERGY GROUP, INC. ET AL., JOINT COMMENTS OF CONSTELLATION ENERGY GROUP, INC., ENTERGY CORP., EXELON CORP., AND NRG ENERGY, INC. REGARDING PROPOSED RULE, LOAN GUARANTEES FOR PROJECTS THAT EMPLOY INNOVATIVE TECHNOLOGIES, http://www.lgprogram.energy.gov/nopr-comments/comment41.pdf [hereinafter JOINT COMMENTS].

88. *Id.* at 5.

89. Loan Guarantees, *supra* note 84, at 27,485.

90. *Id.*

91. Loan Guarantees, *supra* note 84, at 27,475.

92. JOINT COMMENTS, *supra* note 87, at 6-8.

93. *Id.*

94. JOINT COMMENTS, *supra* note 87, at 6-8.

- The requirement that debt falling outside of the guarantee also be subordinated to DOE's interests is also likely to be counterproductive.[95]

- An approach to calculating subsidy cost approach is well established in the FCRA and in routine practice in other federal government loan guarantee programs, where probability of default models are used to estimate expected government payments and recoveries and develop subsidy cost estimates. However, the DOE had not yet stipulated a method for calculating the subsidy cost of guaranteed loans suited to the projects contemplated by Title XVII.[96]

G. Subsequent Events

Debate on the above issues intensified following the NOPR comment period. As of the legislative break in August 2007, the Senate had passed an energy bill (June 21, 2007) reiterating the language of Title XVII and broadening DOE scope to provide loan guarantees.[97] The House passed an energy bill (August 4, 2007) similarly reiterating Title XVII. [98] Both bills prohibited the DOE from imposing a level of loan coverage below 100% (subject to the overall limit of 80% of total capital).

Separately, while prospects for the bills in conference remained uncertain, Senator Domenici extracted an undertaking from the OMB "to support a final rule that would include discretion for DOE to issue guarantees for up to 100% of loans" (coming in the context of confirmation hearings for former Republican congressman Jim Nussle as the administration's nominee for Budget Director).[99] Industry concerns were further echoed in a bipartisan letter organized by Senator Domenici and signed by eighteen senators on August 13, 2007, focusing in particular on the limits on guaranteed loans as a percentage of total debt.[100]

Meanwhile, the DOE advanced the loan guarantee program by naming a permanent Director of the Loan Guarantee Office, on August 3, 2007.

95. *Id.* at 11

96. JOINT COMMENTS, supra note 87, at 14.

97. Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007, H.R. 6, 110th Cong. (2007).

98. Renewable Energy and Energy Conservation Tax Act of 2007, H.R. 3221, 110th Cong. (2007).

99. Press Release, Senate Comm. on Energy and Natural Res., Following OMB Commitment, Domenici and Bipartisan Group of Senators Urge Stronger DOE Loan Guarantee Program (Aug.13, 2007), http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=235362&Month=8&Year=2007&IsTextOnly=1.

100. *Id.*

RECENT NRC JUDICIAL DECISIONS

I. NEPA AND TERRORISM

One significant NRC case decided in the last year was *San Luis Obispo Mothers for Peace v. NRC* (*Mothers for Peace*).[101] In *Mothers for Peace*, the Ninth Circuit examined whether, as part of its environmental review under the National Environmental Policy Act (NEPA), the NRC must consider the potential consequences of a terrorist attack.[102] The case arose when the various petitioners intervened in the Part 72 licensing proceeding and challenged Pacific Gas and Electric's (PG&E) license application to construct and operate an independent spent fuel storage installation (ISFSI) at the Diablo Canyon Nuclear Power Plant.[103]

The petitioners argued, in addition to various technical contentions, that the NRC's Environmental Assessment for the project was inadequate because it failed to consider the environmental impacts of a "terrorist [attack] or other acts of malice or insanity."[104] Although the NRC's Atomic Safety and Licensing Board rejected petitioner's request for a hearing on the terrorism issue, the Board referred the issue to the NRC "in light of the Commission's ongoing 'top to bottom' review of the agency's safeguards and physical security programs."[105] The NRC accepted the referral and affirmed the Licensing Board's rejection of the contention based on NRC precedent which held that terrorism issues need not be considered in NEPA reviews.[106] The NRC reasoned, as it did in prior cases, that terrorism issues need not be considered under the NEPA because:

> (1) the possibility of terrorist attack is too far removed from the natural or expected consequences of agency action to require study under NEPA; (2) because the risk of a terrorist attack cannot be determined, the analysis is likely to be meaningless; (3) NEPA does not require a 'worst-case' analysis; and (4) NEPA's public process is not an appropriate forum for sensitive security issues.[107]

On appeal, the Ninth Circuit reversed and found that the possibility of a terrorist attack is not such a remote and speculative possibility that it does not warrant consideration under the NEPA.[108] The Ninth Circuit reasoned that, in light of the NRC's recent comprehensive efforts to assess potential terrorist threats to various nuclear facilities and to protect against potential attacks, it was unreasonable for the NRC to declare that such an attack is a remote and speculative possibility.[109] Accordingly, the Ninth Circuit held that the ISFSI Environmental Assessment was inadequate as a matter of law and remanded the

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101. San Luis Obispo Mothers for Peace v. NRC, 449 F.3d 1016 (9th Cir. 2006), *cert. denied sub nom.* 127 S. Ct. 1124 (2007).

102. *Id.* at 1019.

103. *Mothers for Peace*, 449 F.3d at 1021-22.

104. *Id*. at 1022.

105. *Mothers for Peace*, 449 F.3d at 1021-22 (quoting 56 N.R.C. 448 (2002)).

106. *Id*.

107. San Luis Obispo Mothers for Peace v. NRC, 449 F.3d 1016, 1022 (9th Cir. 2006) (quoting *Private Fuel Storage*, 56 NRC 340 (2002)).

108. *Id*. at 1030.

109. *Mothers for Peace*, 449 F.3d at 1030-31.

case for further proceedings.[110] PG&E filed a petition for a writ of certiorari; however, the Supreme Court denied certiorari on January 16, 2007.[111]

Despite the Ninth Circuit's decision, the NRC, in a series of orders, has reiterated its belief that the NEPA does not require the NRC to consider the environmental consequences of hypothetical terrorist attacks on NRC-licensed facilities.[112]

II. THE WASTE CONFIDENCE RULE

In *Nevada v. NRC*, the State of Nevada brought a challenge to the NRC's Waste Confidence Rule, 10 C.F.R. § 51.23. [113] In the Waste Confidence Rule, the NRC determined, as a general matter, that "spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation . . . of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage installations,"[114] and accordingly allowed spent fuel storage issues to be omitted from NEPA analysis in facility licensing cases.[115] The State of Nevada alleged that the rule "will skew the judgment of the Commissioners during the Yucca Mountain licensing proceeding expected to occur in several years."[116]

In an unpublished decision, the D.C. Circuit held that the State of Nevada did not have standing to challenge the rule and dismissed the case.[117] The court found that Nevada "can point to no injury in fact as a legal or practical consequence of the Rule."[118] Moreover, the court noted that "[t]he Rule has no legal effect in the anticipated Yucca Mountain licensing proceeding,"[119] and "[t]he notion that the Rule will have a practical influence on future Commissioners during the Yucca Mountain licensing proceeding is a prediction of bias that is neither actual nor imminent."[120]

III. CONSIDERATION OF ENERGY EFFICIENCY UNDER NEPA

In *Environmental Law and Policy Center v. NRC*, several environmental groups intervened in the Exelon Early Site Permit proceeding for the Clinton plant before the Atomic Safety and Licensing Board to challenge the adequacy of the NRC's Draft Environmental Impact Statement (DEIS) on grounds that it

110. *Id.* at 1035.

111. Pacific Gas & Elec. Co. v. San Luis Obispo Mothers for Peace, 127 S. Ct. 1124 (2007). A case that also raises the issue regarding the assessment of terrorism issues in NEPA review, *Devia v. NRC*, has been held in abeyance by the D.C. Circuit for lack of ripeness pending PFS's appeal of adverse permitting decisions in Utah. Devia v. NRC, 492 F.3d 421 (D.C. Cir. 2007).

112. *See AmerGen Energy Co.*, Docket No. 50-0219-LR, at 6 (NRC Feb. 26, 2007), http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2007/2007-08cli.html.

113. Nevada v. NRC, No. 05-1350 (D.C. Cir. Sept. 22, 2006).

114. 10 C.F.R. § 51.23 (a) (2006).

115. *Id.* § 51.23(b).

116. Nevada v. NRC, No. 05-1350, at 1 (D.C. Cir. Sept. 22, 2006).

117. *Id.*

118. Nevada v. NRC, No. 05-1350, at 1 (D.C. Cir. Sept. 22, 2006).

119. *Id*. at 2.

120. Nevada v. NRC, No. 05-1350, at 2 (D.C. Cir. Sept. 22, 2006).

did not sufficiently address energy efficiency alternatives.[121] When the Licensing Board later dismissed the petitioners from the hearing, and the Board's decision was affirmed by the NRC, the petitioners sought review in the Seventh Circuit.[122] The petitioners alleged that the NRC's DEIS was inadequate because it failed to adequately consider energy efficiency measures as reasonable alternatives to building a new nuclear power plant.[123] The NRC responded by arguing that the petitioners were essentially requesting that the NRC perform a "need for power" analysis at the ESP stage, which under NRC rules may be deferred to a later stage in the application process.[124]

The Seventh Circuit agreed with the NRC.[125] The court found that the NRC need not conduct a "need for power" analysis at the ESP stage because it will be adequately considered at a later stage if and when the applicant files an application for a combined license to construct and operate the plant.[126] Accordingly, the court affirmed the NRC's decision dismissing the petitioners from the proceeding.[127]

121. Environmental Law & Policy Ctr. v. NRC, 470 F.3d 676 (7th Cir. 2006).

122. *Id.*

123. *Environmental Law & Policy Ctr.*, 470 F.3d at 682.

124. *Id.* at 684.

125. *Environmental Law & Policy Ctr.*, 470 F.3d at 684.

126. *Id.*

127. Environmental Law & Policy Ctr. v. NRC, 470 F.3d 676, 685 (7th Cir. 2006).

NUCLEAR REGULATION COMMITTEE