In the United States Court of Federal Claims

No. 04-10 C
(Filed: February 26, 2010)

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ENERGY NORTHWEST,	*	
Plaintiff,	*	Spent Nuclear Fuel; Standard Contract; 1987 Acceptance Capacity Schedule (ACS); Annual Priority Ranking (APR); Mitigation; Dry Storage; ISFSI; GTCC Waste; Full Core Discharge Capability; Overhead; Cost of Capital
v.	*	
THE UNITED STATES,	*	
Defendant	*	
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Norman M. Hirsch, Jenner & Block LLP, Chicago, IL, counsel of record for Plaintiff; of counsel were *William D. Heinz*, *David Jimenez-Ekman*, *Christopher Tompkins*, and *April A. Otterberg*, Jenner & Block LLP, Chicago, and *David A. Handzo*, Jenner & Block LLP, Washington, DC.

Sharon A. Snyder, Commercial Litigation Branch, Civil Division, United States Department of Justice, Washington, DC, counsel of record for Defendant, with whom were *Alan J. Lo Re*, Assistant Director, and *Jeanne E. Davidson*, Director, Commercial Litigation Division, and *Michael F. Hertz*, Deputy Assistant Attorney, and *Tony West*, Assistant Attorney General, United States Department of Justice; of counsel were *Jane K. Taylor*, Office of General Counsel, United States Department of Energy, and Joseph E. Ashman, *Scott R. Damelin*, *Jeremiah M. Luongo*, and *Sonia M. Orfield*, Commercial Litigation Branch, United States Department of Justice.

OPINION

DAMICH, Judge.

This case is one of a number of cases before the Court of Federal Claims involving contracts[1] between nuclear utilities and the United States Department of Energy ("DOE") for the

[1] "Standard Contract for the Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste" published at 10 C.F.R. § 961.11.

disposal of spent nuclear fuel ("SNF") and/or high-level radioactive waste ("HLW"). Plaintiff, Energy Northwest, is comprised of 22 public utility districts or municipal utilities spread across the state of Washington. Stip. ¶ 1.[2] On January 7, 2004, Energy Northwest filed suit against Defendant, the United States ("the Government") for partial breach of the Standard Contract. This court has jurisdiction over this matter pursuant to the Tucker Act. 28 U.S.C. § 1491(a)(1); *PSEG Nuclear, L.L.C. v. United States*, 465 F.3d 1343, 1344 (Fed. Cir. 2006). On January 30, 2006, the Court granted summary judgment in favor of Plaintiff on the issue of contractual liability. Thus, the sole issue at trial was the amount of damages, if any, to which Energy Northwest is entitled due to the Government's breach. Order, January 30, 2006; *see Maine Yankee Atomic Power Co. v. United States*, 225 F.3d 1336, 1343 (Fed. Cir. 2000).

Nuclear utilities in these suits cannot recover anticipated future costs attributable to the Government's partial breach of the Standard Contract. *Indiana Mich. Power Co. v. United States*, 422 F.3d 1369, 1376 (Fed. Cir. 2005) (holding "a claimant may not recover, at the time of the first suit for partial breach, prospective damages for anticipated future nonperformance resulting from the same partial breach" (citations omitted)). Energy Northwest, therefore, seeks damages in the instant action only for costs incurred through August 31, 2006. Pl.'s Am. & Supplemental Compl. 11, Oct. 25, 2006.[3] Trial began on February 2 and concluded on February 20, 2009.[4]

[2] Throughout this opinion, the Court will use the following abbreviations: "JX" for joint exhibits; "PX" for Plaintiff's exhibits; "PDX" for Plaintiff's demonstrative exhibits; "DX" for Defendant's exhibits (for a specific page in an exhibit, the page number will be indicated; if it is unclear the last four digits of the Bates number stamped on the document will be used); "Test. App." for Plaintiff's designated testimony, filed August 29, 2008 (Dkt. No. 169), admitted January 9, 2009 (Dkt. No. 199); trial transcripts will indicate the page, line number and witness name "Tr. Page #:line # (Name)"; "Stip." refers to the parties' Joint Stipulations of Fact filed June 30, 2008.

[3] Energy Northwest possesses the right to bring a future suit for damages incurred after August 31, 2006. *See Indiana Mich. Power Co.*, 422 F.3d at 1377-78.

[4] At trial in this matter, the Court heard from the following witnesses, in order of appearance: Neil D. Zimmerman, Reactor Maintenance Supervisor, Energy Northwest; Eric R. Bush, Enercon Services, Inc., Energy Northwest's expert regarding spent fuel storage expansion options and issues related to loading of dry storage and transport; David L. Larkin, Project Manager, ISFSI project; John H. Swailes, Senior Project Manager, Calvert Cliffs Nuclear Power Plant; Dale K. Atkinson, Vice President, Nuclear Generation & Chief Nuclear Officer, Energy Northwest; Joseph V. Parrish, Chief Executive Officer, Energy Northwest; Steve Scammon, Project Manager, Energy Northwest; Lisa Ferek, Fuel & Core Management Lead, Energy Northwest; Eileen M. Supko, Energy Resources International, Energy Northwest's expert regarding the impact of DOE acceptance rates, DOE's efforts to develop SNF transport casks, and the development of storage casks; Jonathan Hicks, Corporate Financial Performance Supervisor, Energy Northwest; Greg Armatrout, Finance Manager, Energy Northwest; Michael P. Emmert, Energy Northwest's expert on damages and the net present value analysis prepared by the Government's expert; John Suing, the Government's witness testifying regarding the cask loading process, incremental labor and other matters; David Zabransky, Officer of Civilian Radioactive Waste Management, DOE; R. Larry Johnson, Veris Consulting, LLC, the Government's expert regarding the calculation of Energy Northwest's damages, accounting issues, adjustments to damages and the monetization of expert opinions offered; Charles L. Stuart, ABZ, Inc., witness providing testimony concerning technical and engineering matters relevant to Energy Northwest's ISFSI project at Columbia; and Raymond S. Hartman, Greylock McKinnon Associates, expert witness concerning an economic analysis of Energy Northwest's damages claim.

Energy Northwest's total damages claim is $56,859,345[5] in mitigation expenses incurred for dry storage of its SNF, which includes the following specific categories: (1) $594,714 in long range planning activities; (2) $12,341,868 in Independent Spent Fuel Storage Installation ("ISFSI") facility costs; (3) $4,497,034 in plant modifications; (4) $6,719,881 in regulatory, licensing, program and ancillary equipment; (5) $23,214,330 in dry cask procurement; (6) $6,694,548 in dry cask loading; and (7) $6,068,909 in financing costs. *See* PX 752; Tr. 2068:19 to 2071:15 (Emmert).

In 2008, the United States Court of Appeals for the Federal Circuit issued three opinions that guide the damages calculation in this case: *Pacific Gas & Electric Co. v. United States*, 536 F.3d 1282 (Fed. Cir. 2008); *Yankee Atomic Electric Co. v. United States*, 536 F.3d 1268 (Fed. Cir. 2008); and *Sacramento Municipal Utility District v. United States ("SMUD II")*, 293 Fed. Appx. 766 (Fed. Cir. 2008). Based on these decisions and for the reasons explained below, this Court awards Energy Northwest $56,859,345 in damages.

I. Background

Energy Northwest,[6] a municipal corporation and joint operating agency of the State of Washington, owns and operates the Columbia Generating Station ("Columbia"), a 1150-megawatt electric boiling water nuclear reactor ("BWR"), located on the southeast corner of the Hanford Nuclear Reservation outside of Richland, Washington. Tr. 59:24-25; 60:1-3, 21-25; 61:1-3; 63:21-24 (Zimmerman); Tr. 1089-90 (Parrish); Stip. ¶ 4; JX 91. It is comprised of 22 member public utility districts or municipal utilities across the state. Stip. ¶ 1. It received its operating license from the Nuclear Regulatory Commission ("NRC") on December 20, 1983; commercial operations began in December 1984. Tr. 61:4 to 62:14 (Zimmerman); Stip. ¶¶ 5, 6; JX 91. Columbia is currently licensed to operate through December 20, 2023, and Energy Northwest plans to apply for a 20-year extension of its license. Tr. 62:20 to 63:6 (Zimmerman); Stip. ¶ 5; JX 91.

In a BWR, in the process of nuclear fission within a reactor vessel, atoms of enriched uranium, U235, are broken, and the splitting nuclei give off energy in the form of heat. Tr. 66:8-21 (Zimmerman); Stip. ¶ 15. The heat causes water in the reactor vessel to boil, generating steam. Tr. 64:3-5, 11-21 (Zimmerman). The steam drives a turbine, mechanically powering a generator to produce electricity. Tr. 64:23; 65:1-11 (Zimmerman). Eventually, the steam exhaust is condensed and returned to the reactor vessel where the cycle begins again. Tr. 65:5-17 (Zimmerman).

The reactor vessel requires fuel. The reactor core at Columbia holds 764 fuel bundles or "assemblies." Tr. 67:8-11; 68:13-19 (Zimmerman); Stip. ¶ 15. To make an assembly, uranium

[5] The parties stipulated that Energy Northwest incurred $60,131,280 in costs for dry storage. Stip. ¶ 28. Plaintiff's expert Mr. Emmert testified that the amount was $60,131,284. Tr. 2058:18-21 (Emmert). The difference is due to rounding cents to dollars. *See* Energy Northwest's Post-Tr. Br. at 42 n 7. Plaintiff's claim is for $56,859,345, which reflects its dry storage costs after deducting $3,271,939 in storage costs not attributable to Defendant's breach.

[6] In 1998, Washington Public Power Supply System ("WPPSS") changed its name to Energy Northwest. Other than its change in name, the company remained the same. Tr. 56:5-11 (Zimmerman); Stip. ¶¶ 1-2. Throughout this Opinion, Energy Northwest will be used to refer to both WPPSS and Energy Northwest.

oxide is baked and ground into a pellet. Pellets are stacked inside of metal fuel rods, and the rods are arranged into bundles held together with tie plates and spacers. Tr. 67:14-25; 68:1-12 (Zimmerman); Stip. ¶ 15. Over time, the uranium becomes depleted, and the assemblies lose their ability to contribute efficiently to the nuclear chain reaction. Tr. 68:20-25; 69:1-3 (Zimmerman); Stip. ¶ 16. Eventually, the fuel assemblies become "spent" and are discharged from the core. At that point, they are referred to as spent nuclear fuel ("SNF"). Tr. 70:5-11 (Zimmerman); Stip. ¶ 16; *Standard Contract for Disposal of Spent Nuclear Fuel and/or High Level Radioactive Waste*, 10 C.F.R. 961.11, art. I (18) (2009) ("A nuclear reactor must be periodically refueled and the 'spent fuel' removed.").

Generally, as is the case with Columbia, when SNF is discharged from the reactor core, it is transferred to a large, stainless-steel lined pool of water called a "spent fuel pool." Tr. 72:11-20; 75:1-14 (Zimmerman); Stip. ¶ 17. Water cools the fuel assemblies and provides natural shielding from the radiation emitted. Tr. 72:11-25; 73:1 (Zimmerman); Stip. ¶ 17. Energy Northwest's spent fuel pool is approximately 40 feet by 34 across and 39 feet deep, lined with stainless steel, and surrounded on the sides and bottom by a 3-4 foot concrete wall. Tr. 75:5-20 (Zimmerman); Stip. ¶ 19. It is unlikely the pool itself could be enlarged, given the concrete surroundings. Tr. 76:11-16 (Zimmerman).

A. History of the SNF Program

On April 7, 1977, President Carter banned all commercial nuclear fuel reprocessing in the United States. Tr. 373:1-5 (Larkin). In response to the President's ban, and to assist nuclear power companies, Congress passed the Nuclear Waste Policy Act ("NWPA"), 42 U.S.C. §§ 10101-10270 (1982), on January 7, 1983. Tr. 373:13-17 (Larkin); Stip. ¶ 7. The NWPA provided the U.S. Department of Energy ("DOE") with authority "to enter into contracts with any person who generates or holds title to [HLW] or [SNF] of domestic origin for the acceptance of title, subsequent transportation, and disposal of such waste or spent fuel." 42 U.S.C. § 10222(a)(1). DOE drafted the Standard Contract, requiring the Government to accept, transport, store, and dispose of SNF and high level waste ("HLW"); in return, "generators and owners" thereof would be responsible for the costs. *Id*. § 10131(b)(4). On February 4, 1983, DOE issued its proposed rulemaking notice in the Federal Register. The notice included the proposed language of the Standard Contract for spent nuclear fuel. 48 Fed. Reg. 5458 (Feb. 4, 1983); Tr. 376:13-24 (Larkin); PX 24; Stip. ¶ 8. DOE published the Standard Contract as a final rule on April 18, 1983. 48 Fed. Reg. 16,590 (Apr. 18, 1983); Stip ¶ 10.

B. The Standard Contract

A failure to sign the Standard Contract would have had significant implications for nuclear utility companies. Specifically, the NWPA required utility companies to sign the Standard Contract or to be engaged in serious negotiations by June 30, 1983; otherwise, the Nuclear Regulatory Commission ("NRC") could not issue or renew an operating license. Tr. 62:12-14 (Zimmerman); 374:7-15 (Larkin); *Indiana Mich. Power Co.*, 422 F.3d at 1372 ("Nuclear plant operators and utilities were mandated by Congress to enter into Standard Contracts, the terms of which are presented at 10 C.F.R. § 961.11, as a prerequisite to obtaining renewal of their operating licenses." (citing 42 U.S.C. § 10222(a)(1); *Maine Yankee Atomic*

Power Co., 225 F.3d at 1337 ("The [NWPA] effectively made entry into such contracts mandatory for the utilities . . . .")).

When NWPA was enacted, Columbia was still under construction, and had a construction license but lacked an operating license. Tr. 374:16-22 (Larkin). If Energy Northwest wanted to obtain a license that would allow the use of the newly constructed facility, the company had no choice but to sign the Standard Contract. Tr. 380:22-25; 381:1-5 (Larkin); PX 32. Energy Northwest executed the contract with DOE on June 13, 1983; it contained the same material terms and conditions as published in the Federal Register. Tr. 381:6-8 (Larkin); Stip. ¶ 11. After signing the contract, Columbia received a 40-year operating license[7] from the NRC in 1983 and began commercial operations on December 13, 1984. Tr. 61:4-11; 62:5-11, 15-16, 24-25; 63:1-3 (Zimmerman); Stip. ¶¶ 5-6.

The Standard Contract concerns delivery "to DOE of SNF and/or HLW of domestic origin from civilian nuclear power reactors, acceptance of title by DOE to such SNF and/or HLW, subsequent transportation, and disposal of such SNF and/or HLW and, with respect to such material, establishes the fees to be paid by Purchaser for the services to be rendered hereunder by DOE." Standard Contract, art. II; *see also* JX-1; Tr. 2297:23-25; 2298:1-8 (Zabransky). The SNF delivery process was supposed to begin "not later than January 31, 1998." Standard Contract, art. II. The Standard Contract obligated DOE to "issue an annual acceptance priority ranking ['APR'] for receipt of SNF and/or HLW at the … repository" starting on April 1, 1991. Standard Contract, art. IV(B)(5)(a). The APR lists all spent fuel discharges according to the date of discharge, ranking the oldest fuel first on the list. Tr. 2298:23-25; 2299:1-17; 2300:3-16 (Zabransky). This order of acceptance is known as Oldest Fuel First ("OFF") priority ranking. Tr. 2300:3-16 (Zabransky). Because the Standard Contract lacked a stated acceptance rate, DOE was to issue an annual capacity report ("ACR") for planning purposes "not later than July 1, 1987." Standard Contract, art. IV(B)(5)(b). The ACR was to "set forth the projected annual receiving capacity for the DOE . . . and the annual acceptance ranking . . . for ten (10) years following the projected commencement of operation of the initial DOE facility." *Id.* Using the OFF ranking, the ACR allocated what portion, if any, of DOE's finite acceptance capacity would be available to a purchaser in a given year. Tr. 2298:23-25; 2299:1-25; 2300:1-2 (Zabransky). In essence, the APR set the ranking and divided this ranking into annual increments.[8] Tr: 2613:9-13 (Zabransky). The Standard Contract established a system whereby the delivery of SNF to DOE would proceed according to a Delivery Commitment Schedule ("DCS"). Standard Contract, art. V; Tr. 2298:23-25; 2299:1-25; 2300:1-2 (Zabransky). After DOE issued its proposed APR, "the Purchaser shall submit to DOE the delivery commitment schedule(s) which shall identify all SNF and/or HLW the Purchaser wishes

[7] After 40 years, Columbia hopes to obtain a 20-year license extension from the NRC, which will allow the plant to remain in business until 2043. Tr. 62:17-23; 63:4-9, 19 (Zimmerman).

[8] According to the Federal Circuit:

> In lieu of a firm rate for SNF/HLW acceptance and disposal, the Standard Contract required DOE to issue annual capacity reports (ACRs) . . . . In addition to the annual reports, the Standard Contract also required DOE to issue annual acceptance priority rankings . . . . This court refers to this entire process as the acceptance capacity schedule or ACS process.

Pac. Gas & Elec. Co., 536 F.3d at 1285-86.

to deliver to DOE beginning sixty-three (63) months thereafter." Standard Contract, art. V(B)(1). DOE would have three months to approve or disapprove the DCS. Standard Contract, art. V(B)(1). For the delivery of SNF covered by a DCS, the Purchaser was then required to submit "final delivery schedules not less than twelve (12) months prior to the delivery date specified therein." Standard Contract, art. V(C).

According to the Standard Contract, "all costs associated with the preparation, transportation, and the disposal of spent nuclear fuel and high-level radioactive waste from civilian nuclear power reactors shall be borne by the owners and generators of such fuel and waste …." Standard Contract, pmbl. The Standard Contract establishes a specific methodology for paying fees to the Nuclear Waste Fund. Standard Contract, art. VIII. Through March 31, 2008, Energy Northwest has paid $150,563,399.72 into the Nuclear Waste Fund under the Standard Contract quarterly payment provision. Stip. ¶ 13.

C. DOE's Breach of the Standard Contract

Although Energy Northwest paid the fees required by the Standard Contract, DOE did not accept SNF and/or HLW by January 31, 1998. To date, DOE has failed to accept SNF from Energy Northwest or any other utility. *See Maine Yankee Atomic Power Co.*, 225 F.3d at 1338. Moreover, that DOE would not fulfill its obligations as required by the Standard Contract became apparent well in advance of January 1998. In its 1987 Mission Plan Amendment, DOE announced that it expected that there would be a slippage in the operating date for the repository. JX-13; Tr. 390:18-25; 391:1-6 (Larkin). Specifically, it stated, "The new schedule shows a five-year extension of the date for waste acceptance at the first repository, from 1998 to 2003." JX 13 (#1912); *see also* Tr. 393:1-12 (Larkin). The document also suggested that DOE could begin to accept waste in 1998 at a Monitored Retrievable Storage ("MRS") facility; however, no MRS has been constructed. JX 13; *see also* Tr. 393:13-25; 394:1-3 (Larkin).

DOE formally announced that it would not perform by January 1998 in a Notice of Inquiry issued on May 25, 1994. DOE's Office of Civilian Radioactive Waste Management ("OCRWM") advised the utilities that it "currently projects that the earliest possible date for acceptance of [SNF] for disposal . . . is 2010." 59 Fed. Reg. 27,007-02 (May 25, 1994); Tr. 431:1-25; 432:1-15 (Larkin); PX 205. The following year, the same office promulgated a "final interpretation of nuclear waste acceptance issues," in which it advised that it "has become apparent that neither a repository nor an interim storage facility constructed under the Act will be available by 1998. DOE currently projects that the earliest possible date for acceptance of waste for disposal at a repository is 2010." 60 Fed. Reg. 21,793-02, 21,794 (May 3, 1995); Tr. 433:10-25; 434:1-25; 435:1-3 (Larkin); PX 225. In *Indiana Michigan*, the Federal Circuit stated, "It is beyond debate that because the government unequivocally announced in 1994 that it would not meet its contractual obligations beginning in 1998, the utilities were in fact obligated to take mitigatory steps." *Indiana Mich. Power Co.*, 422 F.3d at 1375. The Federal Circuit elaborated on this observation in *Yankee Atomic*:

> This statement . . . does not set 1994 as the earliest possible date for any duty to mitigate. Rather, this passage reveals that this court in *Indiana Michigan* viewed 1994 as the latest possible date for the utilities' duty to mitigate . . . . [T]his court recognizes that no one could reasonably dispute that a duty to mitigate existed in

> 1994. This statement, however, is not a ruling that the duty to mitigate did not arise until 1994, but instead suggests that the duty could have arisen earlier.

Yankee Atomic Elec. Co., 536 F.3d at 1275.

D. SNF Storage at the Columbia Generating Station

Originally, Columbia was designed to have a spent fuel pool with a storage capacity of 1,020 fuel assemblies. Tr. 372:1-4 (Larkin); JX 91; Stip. ¶ 20. In light of President Carter's ban on fuel reprocessing, Energy Northwest re-racked the pool to increase its capacity prior to the commencement of commercial operations. Tr. 372:5-25; 373: 1-12 (Larkin); Stip. ¶ 20. As a result of the re-rack, Columbia's pool has space for 2,658 fuel assemblies, 2,654[9] of which are accessible for SNF. Tr. 77: 16-25; 78:1 -9 (Zimmerman); Tr. 370:24-25; 371:1-2 (Larkin); Stip. ¶ 19. Until 2002, all of Columbia's SNF was stored in the spent fuel pool. Stip. ¶ 22. At Columbia, fuel assemblies spend about six years in the core before they are discharged. Tr. 68:23-25; 69:1 (Zimmerman). Beginning in 1986, a portion of the assemblies was replaced each year. Tr. 69:8-25; 70:1-4 (Zimmerman); Stip. ¶ 21. In 1999, Columbia transitioned from annual refueling "outages" and replacements to refueling outages of approximately one third of the assemblies every two years. Tr. 69:2-25; 70:1-4 (Zimmerman); Stip. ¶ 21.

Having closely monitored DOE's program for SNF acceptance, David L. Larkin, Energy Northwest's technical representative on the DOE spent fuel project, provided briefings to the company's Executive Board in 1987 and 1988 indicating skepticism of the prospects for on-time performance by DOE. Tr. 402:14 to 418:12 (Larkin); PX 105; JX 18. Energy Northwest was concerned about the prospect of its spent fuel pool filling up by 2003, leading to plant shutdown in 2005. Tr. 458:11 to 459:2; 795:10-21 (Larkin); Tr. 1009:24 to 1011:5 (Atkinson). In 1991, Mr. Larkin prepared a white-paper addressing storage options of re-racking, consolidating fuel rods from SNF assemblies, and dry cask storage. Tr. 424:20 to 426:8 (Larkin). In 1995, he submitted a report (the "1995 Larkin Study") to senior management advising that, based on DOE acceptance rate projections as well as its projection that an SNF repository would not be completed until 2010, DOE's prospective breach meant SNF would be picked up from Energy Northwest in the year 2026 at the earliest. Tr. 438:10-20; 780:10 to 782:7 (Larkin); JX 51. In that study, he recommended the pursuit of dry cask storage. Tr. 439:11-18; 445:5 to 446:18; 449:9 to 450:7 (Larkin). The 1995 Larkin Study led Energy Northwest senior management to begin steps to implement dry cask storage. Re-racking was not preferred because it would not provide SNF storage over the plant's operating life, but rather only about 10 to 12 years of additional storage capacity, and would only postpone the necessity of dry cask storage. Tr. 444:6 to 446:13 (Larkin). Initial bids for dry cask storage, however, were not "financially assured." Tr. 454:10-19 (Larkin). Consequently, in early 1998, Energy Northwest reinvestigated the potential cost-savings of re-racking. Tr. 452:19-25 (Larkin). Mr. Larkin concluded again, however, that re-racking followed by dry cask storage was more expensive than proceeding directly to dry storage. Tr. 467:17-21 (Larkin).

On July 30, 1999, Energy Northwest entered into a contract for a dry cask storage system with Holtec International, a consulting firm that specializes in SNF storage. Tr. 164:19-24

[9] Four cells were blocked when testing revealed that they were too small and exhibited high friction. Tr. 78:2-9 (Zimmerman); 371:3-9 (Larkin).

(Bush); Stip. ¶ 23. Under this system, SNF is removed from the spent fuel pool and eventually stored in dry storage casks that can hold 68 fuel assemblies. Tr. 82:18-20; 86:2-19 (Zimmerman); Stip. ¶ 26. Engineering and design work for the dry cask storage began in July 2000. Tr. 1178-80; 1182-84 (Scammon). Plant modifications and ISFSI construction began in the fall of 2001 and were concluded in the summer of 2002. Stip. ¶¶ 24-25; Tr. 1206-07 (Scammon). In September 2002, the NRC provided notice that Energy Northwest had met the regulatory requirements for dry cask storage. PX 450; Tr. 83-84 (Zimmerman), 524-25 (Larkin), 1208 (Scammon). That year, the company offloaded five casks of 340 SNF assemblies from its spent fuel pool. Then, in 2004, it offloaded another ten casks with 680 SNF assemblies. Tr. 82:8-25 (Zimmerman); Stip. ¶ 27. As of August 31, 2006, Energy Northwest had completed two SNF loading campaigns, loading a total of 15 casks holding 1,020 fuel assemblies and transporting them to the Columbia ISFSI. Stip. ¶ 27.

The parties have stipulated that Plaintiff actually incurred $60,131,280 in costs between July 1, 1994, and August 31, 2006 and that those costs are "traceable to and supported by Energy Northwest's accounting records." Stip. ¶ 28. Plaintiff deducted $3,271,939 in costs for a rack expansion that its expert, Michael P. Emmert, testified would have been undertaken in the non-breach world. Tr. 2061:19-23 (Emmert); Pl.'s Mem. of Contentions of Fact and Law at 34. Even so, the Government contests Energy Northwest's legal entitlement to recover on its claim on grounds of lack of causation and/or reasonableness and that certain damages are not recoverable as a matter of law. Alternatively, it seeks various offsets to Plaintiff's damages for costs Plaintiff would have incurred in the non-breach world. *See* Stip. ¶ 29.

II. Standards for Decision

A. Mitigation Damages

Energy Northwest seeks damages in recovery of expenses it incurred in mitigation of the Government's breach of performance. The recoverability of these expenses logically follows from the duty of a non-breaching party to mitigate. "Once a party has reason to know that performance by the other party will not be forthcoming . . . he is expected to take such affirmative steps as are appropriate in the circumstances to avoid loss by making substitute arrangements or otherwise." Restatement (Second) of Contracts § 350 cmt. b (1981). *See also Sys. Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 51-52 (2007) ("If one party to a contract provides notice that it does not intend to perform under the contract, the other, non-breaching party acquires an obligation to mitigate, *i.e.*, to take steps to avoid further losses or damage stemming from the breach."). The principle that mitigation damages are recoverable extends to cases, such as the instant one, involving a partial breach. *Indiana Mich. Power Co.*, 422 F.3d at 1375 ("We see no reason why efforts to avoid damages in contemplation of a partial breach should not also be recoverable."). "Mitigation is appropriate where a reasonable person, in light of the known facts and circumstances, would have taken steps to avoid damage." *Id.* at 1375.

"The remedy for breach of contract is damages sufficient to place the injured party in as good a position as it would have been had the breaching party fully performed." *Indiana Mich. Power Co.*, 422 F.3d at 1373 (citing *San Carlos Irrigation & Drainage Dist. v. United States*, 111 F.3d 1557, 1562 (Fed. Cir. 1997)). Accordingly, the non-breaching party must provide this Court with "record evidence about [its] condition with full Government performance, [or] the

Court of Federal Claims [cannot] perform the necessary comparison between the breach and non-breach worlds and thus [cannot] accurately assess the [] damages." *Yankee Atomic Elec. Co*., 536 F.3d at 1273. More specifically, the non-breaching party must prove that its damages were both foreseeable and caused by the breach and must demonstrate the amount of its damages with reasonably certainty. *Indiana Mich. Power Co.,* 422 F.3d at 1373 (citing *Energy Capital Corp. v. United States*, 302 F.3d 1314, 1320 (Fed. Cir. 2002)). The three elements of foreseeability, causation, and reasonable certainty are as applicable to mitigation damage claims as to general damage claims. *Id.* at 1376 ("The presence of a duty to mitigate does not perforce make the pre-breach costs incurred by [the utility] to store its SNF recompensable; appellant must prove foreseeability, causation, and reasonableness.").

1. Foreseeability

"Foreseeability is a question of fact . . . ." *Bluebonnet Sav. Bank, F.S.B. v. United States*, 266 F.3d 1348, 1355 (Fed. Cir. 2001). Foreseeability is determined at the time the contract was executed. *See Indiana Mich. Power Co.*, 422 F.3d at 1373; *Bohac v. Dep't of Agric*., 239 F.3d 1334, 1340 (Fed. Cir. 2001); *Prudential Ins. Co. v. United States*, 801 F.2d 1295, 1300 (Fed. Cir. 1986); *N. Helex Co. v. United States*, 524 F.2d 707, 714 (Ct. Cl. 1975). The non-breaching party must demonstrate that both the magnitude and type of damages or injury were foreseeable at the time of contract formation. *See Landmark Land Co. v. FDIC*, 256 F.3d 1365, 1378 (Fed. Cir. 2001); *Wells Fargo Bank v. United States*, 88 F.3d 1012, 1023-24 (Fed. Cir. 1996). However, the non-breaching party need not demonstrate that a particular means of responding to the breach was foreseeable. "The law does not require that the specific method of mitigation be foreseeable. Rather, the forseeability prong applies to the type of loss, not to the means of mitigation." *SMUD II, 293 Fed. Appx. At 771*); *see also Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1321 (Fed. Cir. 2007) (citing Joseph M. Perillo, 11 *Corbin on Contracts* Sec. 56.7 at 108 ("What is required is merely that the injury actually suffered must be one of a kind that the defendant had reason to foresee and of an amount that is not beyond the bounds of reasonable prediction.")); *S. Nuclear Operating Co. v. United States*, 77 Fed. Cl. 396, 405 (2007) ("While the general response to a breach must be foreseen, the particular way that a mitigating decision is implemented need not.").

2. Causation

Causation, like foreseeability, is a question of fact. *Bluebonnet Sav. Bank, F.S.B.*, 266 F.3d at 1356. There are two potential standards by which this Court may determine causation, the "but for" test and the "substantial factor" test. In the "but for" test, the breaching party is liable for those damages that it directly and entirely caused. *See Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1318 (Fed. Cir. 2007). In the "substantial factor" test, the breaching party is liable for those damages for which the breach was a substantial causal factor. *Indiana Mich. Power Co*., 422 F.3d at 1373 (citing *Energy Capital*, 302 F.3d at 1320). This Court has discretion to select an appropriate causation standard. *Citizens Fed. Bank*, 474 F.3d at 1318 Although in *Indiana Michigan* the Federal Circuit upheld the trial court's decision to apply the "substantial factor" standard of causation, in a more recent spent nuclear fuel decision, the Federal Circuit has described the more traditional "but for" causation test as "preferred" over the "substantial factor" test. *Yankee Atomic Elec. Co.*, 536 F.3d at 1272-73. Accordingly, out of an abundance of caution, in this specific spent nuclear fuel case, the Court employs the "but for"

test herein. Therefore, the non-breaching party "must show that but for the breach, the damages alleged would not have been suffered." *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at 1563 (citing *Standard Havens Prod., Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1374 (Fed. Cir. 1991)).

3. Reasonable Certainty

Finally, reasonable certainty is also a question of fact. *Bluebonnet Sav. Bank, F.S.B.*, 266 F.3d at 1356-58. The standard is well-established: "[c]ertainty is sufficient if the evidence adduced enables the court to make a fair and reasonable approximation of the damages." *Locke v. United States*, 283 F.2d 521, 524 (Ct. Cl. 1960). "[W]here responsibility for damages is clear, it is not essential that the amount thereof be ascertainable with absolute exactness or mathematical precision . . . ." *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at 1563 (citing *Electronic & Missile Facilities, Inc. v. United States*, 416 F.2d 1345, 1358 (Ct. Cl. 1969); *see also Indiana Mich. Power Co.*, 422 F.3d at 1373. Proof need only support a fair and reasonable approximation of its damages. *See, e.g.*, *Energy Capital Corp. v. United States*, 302 F.3d at 1329; *Hughes Commc'n Galaxy, Inc. v. United States*, 271 F.3d 1060, 1067-68 (Fed. Cir. 2001); *Ace-Fed. Reporters, Inc. v. Barram*, 226 F.3d 1329, 1333 (Fed. Cir. 2000); *Locke*, 283 F.2d at 524. However, recovery for speculative damages is precluded. *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at 1563 (citation omitted); *see also Indiana Mich. Power Co.*, 422 F.3d at 1373.

B. Reasonableness and Offsets to Plaintiff's Claim

A breaching party, in an effort to reduce the damages, may establish that the non-breaching party's mitigation efforts or particular claimed costs were not reasonable. *See* Restatement (Second) of Contracts § 350(2) (1981); *Sacramento Mun. Util. Dist. v. United States ("SMUD I")*, 70 Fed. Cl. 332, 367 (2006); *Tenn. Valley Auth. v. United States*, 69 Fed. Cl. 515, 528 (2006). The non-breaching party, however, is not obligated to prove that it made the best choice in mitigation. *Citizens Fed. Bank v. United States*, 66 Fed. Cl. 179, 185 (2005), *aff'd*, 474 F.3d 1314 (Fed. Cir. 2007) ("Monday-morning quarterbacking is irrelevant to an award of mitigation costs."); *see also In re Kellett Aircraft Corp.*, 186 F.2d 197, 198 (3d Cir. 1950) ("Where a choice has been required between two reasonable courses, the person whose wrong forced the choice cannot complain that one rather than the other was chosen."). In addition, the breaching party may establish that, as a result of the breach, the non-breaching party received a benefit by avoiding certain costs, thereby requiring that the non-breaching party's claimed damages be correspondingly reduced by the gain. *See Bluebonnet Sav. Bank, F.S.B. v. United States*, 339 F.3d 1341, 1345 (Fed. Cir. 2003) ("[T]he non-breaching party should not be placed in a better position through the award of damages than if there had been no breach." (citing *White v. Delta Constr. Int'l, Inc*., 285 F.3d 1040, 1043 (Fed. Cir. 2002)).

C. Acceptance Rate

The Federal Circuit has held that "the 1987 report is an ACS report that contemplated full and timely performance. Thus, this report presents the most reasonable measure of the contractual acceptance rate." *Pac. Gas & Elec. Co.*, 536 F.3d at 1292. The Federal Circuit also definitively rejected the 1991 ACS process because it "does not reflect the parties' intent

regarding the contractual acceptance rate." *Id.* at 1291. Based on these decisions, this Court is bound to use the acceptance rates in the 1987 ACR.

III. Discussion

Plaintiff argues that, had DOE begun acceptance of SNF from the nuclear utilities as provided under the Standard Contract, it would not have needed to implement dry storage. Instead, to the extent it would have needed additional storage beyond the existing capacity of its spent fuel pool, it "had lower-cost alternatives available to address its storage needs (if any), which would have provided more than enough capacity" in the non-breach world. Pl.'s Mem. of Contentions of Fact and Law at 31. Its alternatives included either a temporary or even a full re-rack. *Id*. at 32. The reason it rejected the re-rack option in lieu of dry storage was that "it was clear that DOE's lengthy delay would eventually require implementing dry cask storage even after a re-rack." *Id*. As Mr. Emmert, elaborated at trial, "I concluded . . . in the nonbreach world that a rerack of the Columbia fuel pool would have resulted in excess capacity and wasted capital investment." Tr. 1923:2-9 (Emmert).

The Government argues that its failure to begin acceptance of SNF under the Standard Contract did not cause Plaintiff's anticipated loss of sufficient SNF storage space in its spent fuel pool; that DOE acceptance of Greater-than-Class-C ("GTCC") waste concurrently with SNF would have had a delaying impact on Plaintiff's priority ranking acceptance schedule; that Plaintiff's implementation of dry storage was unreasonable as a mitigation measure because Plaintiff would have instead purchased a temporary rack in order to maintain full core discharge capability ("FCDC"); that certain costs in the non-breach world would have been incurred and should be applied to offset any damages recovery; and that various other elements of Plaintiff's damages claim are not recoverable.

In addition, the Government argues that Plaintiff failed to establish its claimed damages with reasonable certainty, because certain costs included in its claim were reimbursed to Energy Northwest by the Bonneville Power Administration and as such were not offset within Plaintiff's claim. "Because the Court cannot determine how much of ENW's claimed costs have already been reimbursed by another entity, the Court should deny plaintiff's claim in its entirety because ENW failed to meet its burden of proof at trial." Def.'s Post-Trial Br. at 11.

Plaintiff's Need to Resort to Dry Storage Was Foreseeable.

On the one hand, Defendant does not seriously contest the foreseeability of Plaintiff's need to seek dry storage due to the Government's failure to accept SNF under the Standard Contract. In its post-trial briefs, Defendant extensively contests causation, reasonable certainty, and the reasonableness of Plaintiff's actions in mitigation, but does little more than recite the precedents that establish Plaintiff's legal obligation to prove foreseeability. Def.'s Post-Trial Br. at 8.

On the other hand, Plaintiff makes at least two persuasive arguments to prove the foreseeability of constructing a dry storage facility.

First, Plaintiff's designated deposition testimony and exhibits provide extensive evidence that one of the objectives of the NWPA and the Standard Contract was to ensure that the nuclear utilities would not need to build additional at-reactor storage after 1998, whether dry or wet. PX 55; JX 6; PX 60; Test. App. 135-36, 170 (Lake Barrett); Test. App. 271, 300, 316, 321 (Alan Brownstein); Test. App. 537-38, 562, 565-66, 576, 580 (Michael Lawrence); Test. App. 709-10, 712 (Robert Morgan); Test. App. 778 (DOE Rule 30(b)(6) witness); Test. App. 893-94, 898, 903, 907-08, 918-19 (Ben Rusche); Test. App. 962, 970, 975-77, 980-81, 983 (Victor Trebules). As Robert Morgan, the acting director of the DOE program, advised attendees at an industry conference in December 1983,

> Beginning in 1998, utilities will not have to provide *any* additional storage facilities on site. During the first year of operation of the repository in 1998, we should be receiving fuel at a rate so that no utility would have to add any further storage facilities either on site or at another location.

JX 6 (emphasis added).

Second, in *SMUD II*, the appellate court's determination of foreseeability essentially instructs the outcome here. There, the Federal Circuit had no problem with the trial court's determination that the construction of a dry storage facility was foreseeable. However, it reversed the trail court's determination that the use of dual-purpose dry storage canisters was not foreseeable on the grounds that the specific method of mitigation need not have been foreseen but rather merely the type of loss.[10] *SMUD II*, 293 Fed. Appx. at 771. If dry storage and dual-purpose canisters for dry storage were foreseeable in *SMUD*, Energy Northwest's comparable method of mitigation, an ISFSI with dual-purpose canisters, was similarly foreseeable.

Therefore, on the issue of the foreseeability of constructing a dry storage facility, Plaintiff has met its burden of proof.

DOE's breach caused Energy Northwest to incur dry storage expenses.

As early as 1987, Energy Northwest was concerned that DOE would not be able to meet its obligation to begin acceptance of SNF beginning in January 1998. PX 105; Tr. 402:14 to 418:12 (Larkin). Even with timely acceptance by DOE, Mr. Larkin advised the Energy Northwest Executive Board that, based on the 1987 ACR, "[a]cceptance of spent fuel from [Columbia] is currently scheduled for the eighth year after commencement" of acceptance generally. Tr. 404:17-23 (Larkin). He further advised that, because at that point DOE didn't expect a repository in operation until 2003, approximately five years after the 1998 start of acceptance, it was more likely that Energy Northwest's acceptance would not begin at least until 2010. Tr. 405:8-17 (Larkin).

[10] In addition to foreseeability, the trial court also concluded that "SMUD's decision to utilize 'dual purpose' dry storage was unreasonable." *SMUD I*, 74 Fed. Cl. at 730 (citations omitted). After observing that this conclusion was made "without elaboration," the Federal Circuit stated: "This court also reverses that unsubstantiated finding." *SMUD II*, 293 Fed. Appx. At 772.

In a briefing to the Executive Board in 1988, he advised that Columbia's first SNF shipment was not scheduled until 2011, with additional delay even more likely. Tr. 411:14 to 415:21 (Larkin). In the 1995 Larkin Study, he updated his projection, noting that "[a]bsent fundamental changes DOE will most likely not remove any spent fuel from [Columbia] prior to the end of the operating license" in 2026. JX 51; Tr. 437:20 to 438:20; 780:10 to 781:23 (Larkin).

In 1999, Joseph V. Parrish, Chief Executive Officer of Energy Northwest, formally requested that the Executive Board approve a contract, with Holtec International, for the implementation of a dry storage system because of DOE's indefinite delay in beginning SNF acceptance. Tr. 1112:19 to 1114:5 (Parrish); JX 73. Mr. Parrish noted that the ability to offload spent fuel from the reactor core would be completely lost at Columbia after the planned 2003 outage without resort to a dry cask storage system. JX 73. Mr. Emmert, designated as Plaintiff's expert witness on accounting, financial issues, net present value analyses, and damages evaluation, testified that, if Energy Northwest had done nothing to expand its storage capacity, by 2005, "the plant would have to shut down because it wouldn't be able to off-load any more spent fuel." Tr. 1984:8-14 (Emmert). Mr. Emmert's analysis of the capacity of SNF in the fuel pool, as demonstrated in PX 602B, indicates that in 2005, absent DOE's timely SNF acceptance, Energy Northwest would have had to accommodate more discharged spent fuel assemblies than it had storage space in its pool. Such a scenario would have necessarily required the shut-down of the plant. PX 602B.

> Q. The final column is amount over available capacity. What is reflected in that column?
>
> A. If there were a number in that column, that would mean the fuel pool is full. The company would need to make another discharge to continue to operate the plant, but wouldn't be able to do that and would have to shut down the plant.

Tr. 1935:23 to 1936:6 (Emmert).

While Mr. Larkin acknowledged that, in the non-breach world, Energy Northwest "would have needed to add some small expansion like a spent fuel rack" to bridge the points in time between pool overcapacity and the start of DOE acceptance of Plaintiff's SNF, the scheduled acceptance by DOE of the company's SNF would otherwise have been sufficient to keep up production without a storage problem. Tr. 401:10-25 (Larkin).

The only options for expansion of the capacity of the spent fuel pool were rack expansion, temporary cask pit racks, or a full re-rack. Mr. Emmert calculated that a rack expansion would have added storage space for 478 additional fuel assemblies, Tr. 1924:16-19 (Emmert), temporary cask pit racks would have added space for 308 additional assemblies, Tr. 1926:11-14 (Emmert), and that a full re-rack would have added space for 1,392 assemblies. Tr. 1926:23 to 1927:1 (Emmert). He testified, however, that "even a rerack of the Columbia pool would not have provided sufficient storage capacity to be able to continue to operate the plant through its life" and would have led to shutdown around 2015. Tr. 1989:5 to 1993:5 (Emmert); PX 602B.

The Government's expert witnesses did not dispute that Energy Northwest would eventually have required an ISFSI for its SNF storage needs. Dr. Raymond S. Hartman, Defendant's expert on economics project evaluation, damages analysis, quantitative economic analysis, industrial organization, and microeconomics, addressed the "running theme" of two alternatives that Plaintiff faced in 1999: building an ISFSI without a full re-rack of the fuel pool versus a full re-rack and then an ISFSI. Tr. 2889:8-12 (Hartman). His analysis acknowledged that Energy Northwest was going to need an ISFSI with both options. "I'm looking at getting them to 2013, having an ISFSI in place in either case." Tr. 2896:10-12 (Hartman). Mr. Richard L. Johnson, Defendant's expert in the areas of financial analysis, cost accounting, auditing, and analysis of economic damages, similarly acknowledged that Plaintiff would have needed an ISFSI even if it had first implemented a full re-rack of its fuel pool. Tr. 2792:10 to 2893:17 (Johnson). Finally, Mr. Charles L. Stuart, Jr., Defendant's expert on nuclear plant operations and management, including plant modifications, outage planning, and handling and storage of new and spent nuclear fuel, testified that a full re-rack, based on a generous calculation providing space for up to 1,818 additional assemblies, would still have allowed Energy Northwest only 13 years' time before additional storage options were necessary. Tr. 2622:1-13 (Stuart).

Defendant avers that Plaintiff's ISFSI costs were unreasonable because they were incurred prematurely and were based on cursory analysis. "In 1995, after a cursory evaluation that was clearly weighted in favor of dry fuel storage, Mr. Larkin recommended that ENW implement dry fuel storage." Def.'s Post-Trial Br. at 22. Given its own experts' acknowledgement of Plaintiff's eventual need for an ISFSI within the existing life of the plant, the Government's argument, therefore, amounts to a contention that Plaintiff's ISFSI costs could, and should, have been deferred until a date after the implementation of a full re-rack of the fuel pool and presumably beyond the scope of the period of damages at issue in this trial.

On the basis of cost efficiency, however, the Court is loath to second-guess Energy Northwest's decision to pursue an ISFSI from the outset when the alternative was to have incurred the capital expenses of both a full re-rack and a subsequent ISFSI. Mr. Bush testified that a full re-rack would have added capacity for not more than 1,392 fuel assemblies or "cells." Tr. 192:3-18 (Bush). By contrast, Dr. Hartman's opinion that a full re-rack, followed in later years by an ISFSI, was more efficient on a net present value ("NPV") basis was itself based on an assumption that a full re-rack would have added 1,818 cells in storage capacity. Tr. 2896:19 to 2898:24 (Hartman). Dr. Hartman also performed his NPV analysis only for the period 2002 to 2013. Mr. Bush explained, however, that the 1,818 figure was based on an incorrect assumption of the expansion capacity of certain areas of the fuel pool where there are "sloped walls." Tr. 192:20 to 193:15 (Bush). When, utilizing Dr. Hartman's methodology but with the variables adjusted for the lesser figure of cells to be gained by a full re-rack as well as for a longer time horizon within which to determine the comparative costs of the two alternatives (re-rack first versus ISFSI), Mr. Emmert demonstrated that it was less expensive to build the ISFSI on an NPV basis. Tr. 3090:25 to 3105:4 (Emmert). "The conclusion I reached is that the savings the company would have experienced by selecting the dry cask only option versus the rerack first option range in the area of 1.8 million dollars to 6.7 million dollars." Tr. 3104:19-24 (Emmert).

It Was Not Unreasonable to Pursue Dry Storage Instead of a Full Re-Rack.

The Court finds unpersuasive the Government's effort to show that Plaintiff's mitigation in the breach world, via dry cask storage, was unreasonable. The burden of proof to demonstrate the unreasonableness of Plaintiff's mitigation efforts lies with the Government here. As the Federal Circuit noted in *SMUD II*, 293 Fed. Appx. at 772, "When mitigating damages from a breach, a party 'must only make those efforts that are fair and reasonable under the circumstances,'" *id.* (citing *Home Sav. of Am. v. United States*, 399 F.3d 1341, 1353 (Fed. Cir. 2005). The non-breaching party, however, is not obligated to prove that it made the best choice in mitigation.

> That the method of mitigation which, in hindsight, appears most reasonable and appropriate was not used should not preclude recovery. Indeed, to rule otherwise would contradict the incentives of the mitigation doctrine altogether.

Id. at 771-72.

In weighing whether Plaintiff's course of action was reasonable, the Court credits Plaintiff's observation that the implementation of an ISFSI has enabled it to continue operating past the 2005 date when the plant would have to have shut down if Plaintiff had done nothing (see *Systems Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 60 (2007) (success of mitigation a presumptive indicator of reasonableness) as well as the approval it obtained from the NRC for its Holtec dry cask storage system (*see Southern Nuclear Operating Co. v. United States*, 77 Fed. Cl. 396, 427 (2007) and *Yankee Atomic Elec. Co. v. United States*, 73 Fed. Cl. 249, 285 (2006), *aff'd in part, rev'd in part*, 536 F.3d 1268 (Fed. Cir. 2008)). Additionally, Eileen M. Supko, Plaintiff's expert witness on spent fuel storage, transport, and disposal, future SNF discharge projections, SNF acceptance allocations, and GTCC waste acceptance, testified that there were 11 ISFSIs operating at the time Energy Northwest contracted with Holtec and 230 operational ISFSIs by 2002. Tr. 1485:23 to 1486:5 (Supko). That this practice was widespread in the nuclear industry at the time further demonstrates the reasonableness of Plaintiff's decision to proceed with dry storage. Ms. Supko also testified that, by 1999, the cask industry was "very stable" and had largely resolved quality control and fabrication issues that arose in the mid-1990s. Tr. 1484:9-18 (Supko).

As a final and highly persuasive matter, Energy Northwest was legitimately concerned about the uncertainty of DOE's start of performance. This concern over what clearly appeared to be a status of "indefinite delay" in DOE performance, see JX 73, was a major factor influencing the decision to pursue dry storage. Tr. 494:11 to 496:4 (Larkin); Tr. 1112:25 to 1113:11 (Parrish). Ms. Supko testified that, based, inter alia, on DOE's notices in the Federal Register in 1994 and 1995 projecting that the earliest possible date for SNF acceptance was 2010, nuclear utilities "were assuming that they would have to provide spent fuel storage for the life of the plant, because of the uncertainty of the repository schedule." Tr. 1664:11-14 (Supko). She had made the same observation in April 1995: "For prudent planning, most utilities assume that they will have to provide life-of-plant spent fuel storage capacity." DX 139. The Court finds that Plaintiff's mitigation expenses, specifically the decision to implement dry storage via an ISFSI, were reasonable under the circumstances in response to DOE's breach and to avoid a shut-down of the Columbia plant through its end-of-license operations in 2026. As the trial court noted in

Dominion Res., Inc. v. United States, 84 Fed. Cl. 259, 273 (2008), an ISFSI was reasonable given that "the Government put plaintiffs in the unexpected position of having to create facilities to store large quantities of fuel for an indefinite period."

Having determined the reasonableness of Plaintiff's mitigation costs in the actual, breach world, the Court must further weigh, as Defendant appropriately notes, "whether ENW would have incurred its claimed costs even had DOE begun accepting SNF from Columbia." Def.'s Post-Trial Br. at 8-9. The requirement of this inquiry was framed by the Federal Circuit in *Yankee Atomic*:

> Without record evidence about the Yankees' condition with full Government performance, the Court of Federal Claims could not perform the necessary comparison between the breach and non-breach worlds and thus could not accurately assess the Yankees' damages.

Yankee Atomic, 536 F.3d at 1273; *see also Bluebonnet Sav. Bank, F.S.B. v. United States*, 339 at 1345 ("To derive the proper amount of the damages award, the cost resulting from the breach must be reduced by the costs, if any, that the plaintiffs would have experienced absent the breach.").

As instructed by the Federal Circuit, this Court's calculation of Energy Northwest's acceptance schedule in the "but for" world is premised on the acceptance rates in the 1987 ACR: 1,200 MTU per year for 1998 through 2002, ramping up to 2,000 MTU per year by 2003, and then to 2,650 MTU per year from 2004 through 2007. *Pac. Gas & Elec. Co.*, 536 F.3d at 1292; JX 14. The acceptance rate found in the 1987 ACR, however, is only one component of the ACS process; the Court must also determine Energy Northwest's position in the acceptance queue by looking at the APR. The 1987 APR is the starting point for this Court, but not the final word, for this data because, as discussed further below, this Court believes that the 2004 APR is more appropriate to use because it provides more years of actual, rather than merely projected, data.

The 1987 APR is found in Tables A.1 through A.10 of JX 14. In the third column of the chart below, the rate of acceptance is taken from the 1987 ACR.

Chart I

Year of Program	Year	Annual Acceptance [ACR][11] in Metric Tons of Uranium (MTU)	Cumulative Acceptance in Metric Tons of Uranium (MTU)	Columbia Acceptance [APR] in Metric Tons of Uranium (MTU)[12]
1	1998	1,200	1,200	0
2	1999	1,200	2,400	0
3	2000	1,200	3,600	0
4	2001	1,200	4,800	0
5	2002	1,200	6,000	0
6	2003	2,000	8,000	0
7	2004	2,650	10,650	0
8	2005	2,650	13,300	24.237
9	2006	2,650	15,950	35.776
10	2007	2,650	18,600	30.779
Totals		18,600	18,600	90.792

A review of this chart reveals that in the "but for" world using only the information in the 1987 ACR, DOE would have picked up 90.792 MTU of Energy Northwest's SNF by year 2007.

In the 1987 ACS process, the listing of spent fuel by discharge date, provided in Appendix B, was based, however, on "discharge information [that] was obtained from the Purchasers' Nuclear Data Form, RW-859, 1985 submittals." JX 14 (#2768). Therefore, the data found in this table after 1985 are based on projections, not actual information. In the "but for" world, by contrast, in performing the Standard Contract, DOE would not have had to rely on projected post-1985 discharge information; rather, it would have had more years of actual discharge data. This discharge data can be found in the Acceptance Priority Ranking & Annual Capacity Report of July 2004. PX 467 (#0020-53). Appendix A of the APR/ACR of July 2004 specifically states:

> In accordance with the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (10 CFR Part 961) (Standard Contract), an Acceptance Priority Ranking (APR) listing has been generated based on information as reported to the Department by the Purchasers on the Nuclear Fuel Data Survey Form, RW-859. The 2004 APR listing is based on SNF discharges through December 31, 2002.

PX 467 (#0019).

[11] This acceptance rate is found in Table 2.1 of the June 1987 Annual Capacity Report. JX 14 (#2717).

[12] This APR is found in Table A.1 through A.10 of the June 1987 Annual Capacity Report. It was then cross-referenced with the listing of spent fuel by date of discharge in Appendix B of the Annual Capacity Report. Appendix B carried the amount of SNF in MTU to three decimal places; the Court has done the same. JX 14 (#2727-67).

The chart below reflects Energy Northwest's acceptance schedule using the acceptance rate found in the 1987 ACR, as required by the Federal Circuit, with an APR that reflects actual discharge data from 1985 to 2002 that DOE would have relied upon in the "but for" world.

Chart II

Year of Program	Year	Annual Acceptance [ACR][13] in Metric Tons of Uranium (MTU)	Cumulative Acceptance in Metric Tons of Uranium (MTU)	LACBWR Acceptance [APR] in Metric Tons of Uranium (MTU)[14]
1	1998	1,200	1,200	0
2	1999	1,200	2,400	0
3	2000	1,200	3,600	0
4	2001	1,200	4,800	0
5	2002	1,200	6,000	0
6	2003	2,000	8,000	0
7	2004	2,650	10,650	0
8	2005	2,650	13,300	17.6
9	2006	2,650	15,950	22.7
10	2007	2,650	18,600	52.6[15]
Totals		18,600	18,600	92.9

A review of this chart reveals that in the "but for" world using the 1987 ACR with the 2004 APR, DOE would have picked up 92.9 MTU of Energy Northwest's SNF by year 2007. The MTU amounts of SNF pick-up are almost the same and would not have made a noticeable difference in the but-for world, but in consideration of the parties' arguments over proof of causation, the Court finds the 2004 APR the more useful data.

Plaintiff's expert, Mr. Emmert, testified, based on data that also incorporated the 2004 APR data above, that -- with rack expansion only (also referred to as "partner racks") -- Energy Northwest would have had no need for dry storage in the non-breach, but-for world if DOE had performed beginning in 1998:

> The conclusion I reached was that the company in the nonbreach world, assuming DOE acceptance, could have operated the plant and met its spent fuel capacity needs by the addition of these partner racks, and the additional investment in those partner racks.

[13] This acceptance rate is found in Table 2.1 of the June 1987 Annual Capacity Report. JX 14 (#2717).

[14] This APR is found in Appendix A of the 2004 APR/ACR. PX 467 (#0020-53).

[15] Energy Northwest has two allocations in 2007, one for 27.6 and one for 25.0 for a total acceptance in 2007 of 52.6 MTU.

Tr. 1961:7-16 (Emmert); PDX 13. Mr. Emmert said his modeling showed that the company would not have needed to construct a dry storage facility because "the addition of the partner racks would have been sufficient to meet balance of plant life spent storage needs." Tr. 1963:14-20 (Emmert). He explained that the rack expansion in 2005 would have sufficed to bridge a small gap of space needed for 118 assemblies to continue operations. Tr. 1964:7 to 1965:25 (Emmert).

Mr. Emmert's inventory modeling was based on Ms. Supko's calculation of SNF allocations under the 1987 ACR rates, employing the updated 2004 APR. His model further showed that a full re-rack in the non-breach world, in lieu of a rack expansion, would have resulted "in a significant amount of excess capacity in the pool and a waste of capital investment by the company." Tr. 1974:4-8 (Emmert). Therefore, in the but-for world the company would not performed a full re-rack "because it would not have been a prudent investment." Tr. 1974:9-15 (Emmert). The foregoing modeling was based on an acceptance rate of 3,000 MTU, the rate projected in the 1987 Mission Plan Amendment, for the years beyond the ten-year period of the 1987 ACR, as incorporated in Ms. Supko's calculations. Tr. 1401:18 to 1404:10 (Supko); JX 13.

Mr. Emmert also employed, however, a sensitivity analysis performed by Ms. Supko, less favorable to Energy Northwest than the 1987 Mission Plan projection, modeling the inventory needs of the company based on a frozen acceptance rate of 2,650 MTU after 2007. Tr. 1974:19 to 1977:13 (Emmert).[16] His conclusions were the same regarding the adequacy of rack expansion to meet the company's storage needs and the over-capacity that a full re-rack would have engendered. Tr. 1976:15 to 1977:25 (Emmert). He further concluded that in none of his scenarios would Energy Northwest have had to build an ISFSI. Tr. 1978:6-14 (Emmert).

Defendant takes issue with Plaintiff's causation argument in the but-for world in two additional respects, its failure to account for Greater than Class C radioactive waste ("GTCC") and its need to have maintained sufficient storage capacity to account for full core discharge capability ("FCDC").

The Issue of GTCC Waste Does Not Undermine Plaintiff's Proof of Causation.

"GTCC waste is one of the radioactive byproducts of nuclear waste generation." Yankee Atomic, 536 F.3d at 1277. The court in *Yankee Atomic* affirmed that GTCC constituted high level waste ("HLW") and was thus included in DOE's acceptance obligations under the Standard Contract. It agreed with the trial court that the costs of GTCC storage were potentially recoverable damages to the same extent of SNF storage expenses. *Id*. at 1279. In particular, the court observed, "In addition, as the trial court found, the record shows that the Government planned to (and would have) removed the GTCC with the SNF." *Id*. at 1278. Defendant here argues that Ms. Supko's model "fails because she did not properly account for the acceptance of GTCC." Def.'s Post-Trial Br. at 15. More specifically, the Government explains that if the allocation queue based on the 1987 ACR were to be adjusted to account for HLW, including

[16] While Mr. Emmert's more conservative-rate sensitivity analysis reaffirms his conclusions, this Court concurs with the conclusion of the trial court in *Consolidated Edison v. United States*, Nos. 03-2622C, 04-33, slip op. at 2 (Fed. Cl. May 18, 2009), that "'the 1987 ACR process,' as defined in *Pac. Gas & Elec.*, incorporates both the 1987 ACR and the 1987 [Mission Plan Amendment ('MPA')]."

GTCC, in conformance with the holding in *Yankee Atomic*, there might then be ripple effects to the priority listings among all the nuclear utilities. Ms. Supko did not make any such adjustments in her modeling, calling into question presumably the timetable for first acceptance from Energy Northwest in particular and the costs it would therefore have incurred even in the non-breach world to maintain adequate storage capability. The Government, though, did not introduce evidence of what the allocation queue would have been by virtue of the inclusion of GTCC.

The parties dispute the legal requirements of Plaintiff's burden of proof in the but-for world. Energy Northwest argues appropriately that the breaching party ought not to reap the benefits of uncertainty caused by its breach. "The defendant who has wrongfully broken a contract should not be permitted to reap advantage from his own wrong by insisting on proof which by reason of his breach is unobtainable." *Locke v. United States*, 283 F.2d 521, 524 (Ct. Cl. 1960). Plaintiff also notes that "when true facts relating to a disputed issue lie peculiarly within the knowledge of one party, it is fair to assign the burden of proof to that party." *United States v. Santee Sioux*, 254 F.3d 728, 733 (8th Cir. 2001). Defendant emphasizes, in contrast, the obligation of Plaintiff "to establish a plausible 'but-for' world." *Yankee Atomic*, 536 F. 3d at 1273.

The Court must therefore examine the extent to which Plaintiff has demonstrated a plausible scenario in the but-for world, recognizing, however, that certain limitations engendered by Defendant's breach may indeed render proof of the hypothetical impossible. Ms. Supko testified that DOE has yet to issue any "detailed acceptance criteria and general specifications" for its acceptance of HLW, as required under the Standard Contract. Tr. 1671:7-20 (Supko); JX 1. David K. Zabransky, the Acting Director of the Waste Acceptance Division in OCRWM and the Contracting Officer for the Standard Contract since 2002, testifying for the Government, confirmed that acceptance criteria for HLW, including GTCC, still has not been issued:

> Q. The DOE has not issued any detailed acceptance criteria for GTCC waste, correct?
>
> A. Well, they wouldn't. It would issue them for high level waste.
>
> Q. Okay. And, therefore, the Department, you are saying, has not issued any detailed acceptance criteria for GTCC waste, correct?
>
> A. Well, again, the answer to that is no, but as we have explored this a little further, until August [2008],[17] and until much later than August, we didn't realize or didn't even – at this point had still not determined whether GTCC is high level waste as far as the Department is concerned.

[17] It was in August 2008 that the Federal Circuit, in *Yankee Atomic*, 536 F.3d at 1277, held that GTCC was included in the definition of HLW.

Tr. 2427:1-14 (Zabransky).

Ms. Supko further testified that the 1987 Mission Plan Amendment, JX 13, lays out separate waste streams for SNF and HLW, suggesting that the acceptance of GTCC waste would be performed in a queue distinct from that of its SNF. Tr. 1405:7-23 (Supko). Nor had any ACR or APR included GTCC or other HLW in the acceptance scheduling. Tr. 1463:21 to 1464:2 (Supko). Upon examination of the canisters of GTCC stored at utility sites available for acceptance at the time of trial, DOE's Sandia National Laboratory estimate of GTCC volume at existing reactor sites, and its estimate of GTCC waste expected to be generated in the future, Ms. Supko concluded that DOE acceptance of GTCC waste even concurrently with SNF would not have had any effect on Energy Northwest's allocations for SNF pick-up. Tr. 1481:17 to 1482:16; Tr. 1483:19 to 1484:4 (Supko). "[I]t is such small volume that it really has no impact on the acceptance, overall acceptance of spent fuel." Tr. 1483:17-18 (Supko).

Mr. Zabransky's testimony in this regard was much less edifying. He acknowledged that he had no information whether there would have been any impact on Energy Northwest's acceptance allocations if DOE had begun accepting GTCC waste in 1998. Tr. 2446:3-20 (Zabransky). He could not identify any GTCC waste that would have been ranked for acceptance prior to Energy Northwest's first SNF discharge. Tr. 2447:2-11 (Zabransky). He also acknowledged that his office at DOE "has not undertaken any study about how GTCC would have been included in the queue, had performance commenced under the contract in 1998." Tr. 2420:10-15 (Zabransky). Asked how OCRWM would have managed the acceptance of GTCC along with SNF in the acceptance queue, he responded,

> A. You can lay out alternatives and plausible scenarios, but I don't know that you can say, anybody can say with definition what would have happened.

Tr. 2421:11-14 (Zabransky).

The Court does not find that the issue of GTCC acceptance would have changed Plaintiff's need to pursue dry storage.

Plaintiff Would Not Necessarily Have Provided for FCDC in the But-For World.

In addition, Defendant argues that Energy Northwest would have purchased temporary racks "in order to protect against the commercial risk posed by the need to offload the reactor core when there was insufficient space in the SNF pool." Def.'s Post-Trial Br. at 41. Temporary cask pit racks (in addition to rack expansion) would have been necessary in the but-for world in order to maintain full core discharge capability (FCDC), which, under the 1987 ACR, Energy Northwest would otherwise have lost for 11 years, nine of them consecutively. FCDC refers to the operating practice of retaining sufficient "empty space in the fuel pool to accommodate the total number of assemblies contained in the reactor core." Pl.'s Mem. of Contentions of Fact and Law at 6. For Energy Northwest, that number is 764 assemblies. *Id*. Plaintiff avers that, while maintaining FCDC is "a common industry practice," it is "not a regulatory requirement." *Id*. As noted supra, Plaintiff's expert Mr. Emmert acknowledged that Energy Northwest would have

pursued a rack expansion (or partner racks) in the non-breach world, for the cost of which it has diminished its damages claim by $3,271,939. The cask pit racks would have added storage space for an additional 308 assemblies. The Court, however, has already found reasonable Plaintiff's determination in the breach world to pursue an ISFSI rather than incur the capital expense of both a full re-rack, which would have added capacity for 1,392 assemblies, as well as that of an ISFSI. The Government's argument, therefore, about maintaining FCDC becomes more of a claim for an offset in the non-breach world rather than an undercutting of Plaintiff's causation showing, because Plaintiff would still have required an ISFSI in order to maintain operations through the life of the Columbia plant.

Lisa Ferek, a senior nuclear engineer at Energy Northwest, testified that not maintaining FCDC posed an economic risk in that loss of the ability to unload the entire reactor core, in the event of an emergency or even in a routine need, would lengthen the time of a plant outage and result therefore in lost revenues from power that would otherwise be generated. Tr. 1282:12-21 (Ferek). Mr. Dale Atkinson, Vice President of Operational Support for Energy Northwest, testified that the cost of a two-month shutdown of the plant would be on the order of $52 million, Tr. 1062:23 to 1063:3 (Atkinson), whereas Mr. Emmert testified that the cost of temporary cask pit racks would have been $714,250. Tr. 2061:11 to 2062:7 (Emmert). Mr. Larkin also noted that, "[w]hile the probability of an event requiring a full core discharge may be low an extended delay in being able to offload would have a significant economic penalty." JX 65. He also indicated to the NRC that the company's desire was to maintain FCDC. JX 63.

Defendant's expert Mr. Stuart characterized the trade-off that confronted Energy Northwest:

> So you are risking $700,000 versus a million dollars a day if you don't have something available to yourself [FCDC]. That risk is too high.
>
> I couldn't have gone to the Board of Directors with that and I don't think any utility manager that I know of would be willing to do so either.

Tr. 2570:17-24 (Stuart).

As Defendant summarized the point, Energy Northwest "would not have taken the economic risk of loss of FCDC in order to save $714,250 by not buying [] temporary racks." Def.'s Post-Trial Br. at 46.

Plaintiff argues against this offset for three reasons: first, Plaintiff's corporate executives Messrs. Parrish and Atkinson both testified that loss of FCDC would have been acceptable to them. Tr. 1098:1 to 1100:19 (Parrish); Tr. 998:15-22 (Atkinson). Second, Mr. Atkinson testified that Energy Northwest has actually operated in the real world without FCDC on two occasions, from 1999 to 2004 and again from 2007 to 2008. Tr. 998:14-15 (Atkinson). He further testified that the company determined that operating without FCDC was neither a regulatory violation nor a safety issue. Tr. 999:6-13 (Atkinson). In both instances, the company made a "business

decision" based on the likelihood of a need for full core discharge and the cost of maintaining FCDC. *Id*. at 12-13. He stated,

> We concluded, after looking at industry experience and our own situation that we considered the need for full core off-load to be highly unlikely, and in each case made decisions that we thought were the best financial decision for the organization.

Id. at 18-23.

Third, Mr. Bush testified that the costs of engineering and licensing of cask pit storage plans are typically incurred prior to any need for cask pit implementation and were in fact already incurred and incorporated in the costs for the company's rack expansion. Tr. 195:13-18 212:18 to 213:5 (Bush); He also testified that it would take only two months to fabricate an initial cask pit rack and each subsequent rack only about six weeks. Tr. 196:8-14 (Bush).

Ultimately, the Court is not persuaded by Defendant's evidence that Energy Northwest would necessarily have implemented cask pit storage, in addition to its rack expansion, in order to maintain FCDC. In particular, Defendant's view of Plaintiff's likely action in the non-breach world is belied by the fact that the company actually chose to forego that capability in the real world. While Plaintiff, in planning documents and testimony, did express that FCDC is in fact "a preference," Tr. 996:4-8 (Atkinson), its internal preferences are reasonably subject to change depending on circumstances and a contrary finding would entail the Court's second-guessing of a business decision in which Energy Northwest demonstrated its own calculus of risk. As the burden of proof in determining an offset is on the Government here, *see Westfed Holdings, Inc. v. United States*, 407 F.3d 1352, 1370 (Fed. Cir. 2005) ("If the government wanted an offset, it was the government's burden to prove . . . ."); *Dominion Res., Inc. v. United States*, 84 Fed. Cl. 259, 270-71 (2008), the Court will not reduce Plaintiff's damages by the cost of fabrication of the cask pit racks.

Defendant's Proposed Offsets Are Deferred, but Not Avoided, Costs.

Other offsets proposed by Defendant are for certain plant and site modifications and activities to support the loading and transport of a large rail cask, cask loading costs, and overhead.

The plant and site modifications and activities, the costs of which Defendant argues Energy Northwest would have incurred even in the but-for world, include the analysis and implementation of a seismic mitigation device in the cask wash down area, the fabrication and installation of seismic restraints in the cask loading pit, removal and rework of the cask wash down pit grating and modification of the cask wash down pit drain and piping, haul path and transfer pad from the reactor building to an on-site railroad line, preparation or modification of procedures for cask loading, and an underwater camera. These items are based on Defendant's effort to identify a cask that would have been utilized for transfer at the utility's site of SNF to DOE pursuant to the Standard Contract. Mr. Stuart testified that he identified "what a cask would look like and what the activities would look like" in the but-for world. Tr. 2576:3 to

2578:10 (Stuart). His conclusion was based on a review and analysis of actual SNF casks for boiling water reactors licensed during the period from 1998 to 2006, NRC regulations on cask design, site conditions specific to the Columbia plant, and site-specific management preferences. Tr. 2574:6 to 2585:10 (Stuart). In ascertaining the limited parameters of such a cask, he was able to identify costs that he concluded Plaintiff would have incurred in the non-breach world to facilitate the delivery of its SNF to DOE. Def.'s Post-Trial Br. at 49. According to the Government, Plaintiff avoided these costs in the breach world and they therefore should be deducted from any recovery of damages.

Plaintiff argues that the Government's proposed offsets are only deferred, not avoided, costs and warrant no deduction. As the Federal Circuit held in *Carolina Power & Light Co. v. United States*, 573 F.3d 1271, 1277 (Fed. Cir. 2009), "This court rejects the argument that [plaintiff] has avoided the costs of loading casks such that the government should benefit from an offset in the damages award. Plaintiffs have not avoided the costs of loading. Rather, they have merely deferred these costs." *Id.*

In addition, Plaintiff contends, the Government's proposed offsets are inappropriate because they are based on improper speculation. Mr. Stuart acknowledged that "the specific cask or casks the DOE would have used at any specific utility site cannot be positively identified," Tr. 2648:18 to 2649:8 (Stuart), but that he first identified casks that could be used as a "proxy" in the non-breach world and then determined the activities needed to be undertaken to use the proxy casks. *Id*. He reached his opinion based on the characteristics, including shape, height, diameter, and weight, of seven proxy casks. Tr. 2657:3 to 2663:18 (Stuart). Mr. Bush testified for Plaintiff, however, that there was a 90% likelihood that Energy Northwest would need additional or different modifications to accommodate the eventual DOE-confirmed cask. Tr. 322:13-23 (Bush). He also opined that Mr. Stuart did not consider a number of "parameters" that would be integral to any consideration of "potential activities or modifications in implementing a cask system at the site." Tr. 226:6 to 227:3 (Stuart). With respect to Defendant's proposed offset of the cost of an underwater camera, Defendant provided no evidence that the camera was in fact utilized for any purpose other than that related to the ISFSI. Tr. 2608:20 to 2609:4 (Stuart). Accordingly, the Court finds that Defendant has not met its burden of proof with respect to these offsets, that the costs it seeks to offset are cask-specific, and that as such it is improperly speculative to conclude that Energy Northwest will not incur these costs once the authorized DOE cask is identified and DOE performs under the Standard Contract.

Plaintiff Is Entitled to Recover for Overhead.

The Government additionally argues against any recovery by Plaintiff for overhead. "The overhead costs were fixed costs that were not incremental to DOE's delayed performance and are not recoverable as damages." Def.'s Post-Trial Br. at 64. By "incremental," the Government explains that Energy Northwest "neither added personnel nor incurred additional costs related to these overhead functions as a result of DOE's delay and the ISFSI project." *Id.* Testifying for Plaintiff, Mr. Johnathan Hicks, corporate financial performance supervisor for Energy Northwest, explained that the company charges corporate administrative costs, divided into the categories of management overhead, administrative and general costs, information

services cost, benefits, and resource development, to projects based on labor, measured by time, that is spent on that project. Tr. 1728:7 to 1729:4 (Hicks). He described this methodology as appropriate under generally accepted accounting principles. *Id*. This Court concludes that Defendant's argument regarding fixed costs and lack of "incrementality" were raised and resolved against the Government in the decision of the Federal Circuit in *SMUD II*. There, the court held that the plaintiff utility was entitled to recover "internal labor costs incurred as part of its mitigation effort" "so long as it establishes that the claimed expenses were caused by the breach." *SMUD II, 293 Fed. Appx.* at 772-73. There was implicitly no requirement that the injured plaintiff had to prove that its internal resources costs had increased as a consequence of the Government's breach. That such internal resources were "spent" in mitigation activities because of the breach was sufficient for recovery. *Id*. at 773. Plaintiff demonstrated its overhead costs were caused by the Government's breach and this Court holds that it is entitled to recover therefore.

Defendant's Reimbursement Defense Relating to the Bonneville Power Administration is Unconvincing.

Defendant urges the court to deny Plaintiff's claim in its entirety because, by virtue of an unspecified payment by the Bonneville Power Administration ("BPA") to Energy Northwest for a part of Plaintiff's increased costs for dry storage, *see* Tr. 2176:13 to 2178:13 (Parrish), Plaintiff has failed to establish its damages with reasonable certainty. Defendant raised this matter for the first time in its post-trial brief. BPA is a DOE entity that manages the distribution of electricity from hydroelectric projects along the Columbia River. Tr. 1094:14-22 (Parrish). It is not funded by United States taxpayers. 16 U.S.C. § 839d(j). Plaintiff did not reduce its claim to account for costs "already reimbursed" by BPA and the failure to account for reimbursement by another entity constitutes "a failure of proof." Def.'s Post-Trial Br. at 11.

Defendant's own failure, however, to plead the BPA payment in its answer or indeed at any time prior to trial, or even specifically at trial, waives reimbursement as an affirmative defense, according to Plaintiff. Rule 8(c)(1) of the Rules of the Court of Federal Claims requires that, in responding to a pleading, a party must affirmatively state any avoidance or affirmative defense, including "payment." The issue of any BPA payment is not a part of Plaintiff's prima facie case and thus constitutes an affirmative defense. Because the matter has been raised so late in the course of this litigation, it forecloses any testimony that Plaintiff could have elicited at trial and therefore has the effect of an unfair surprise, *see Hassan v. U.S. Postal Service*, 842 F.2d 260, 263 (11th Cir. 1988). This Court holds the issue waived.

Additionally, as an affirmative defense, however, the issue of the BPA payment becomes one in which the Defendant would bear the burden of proof. *See Siverson v. United States*, 710 F.2d 557, 560 (9th Cir. 1983). The Court finds that its proof is lacking, for inter alia it failed at trial to show what amount, if any, should be reduced from Plaintiff's damages.

Furthermore, as Plaintiff explains in its reply, BPA was not acting as a third-party payor or indemnitor of Energy Northwest's dry storage costs. Rather, BPA is merely an "aggregator" in a system in which the relationship between Energy Northwest and its utility "Participants" on a given project is governed by three-party Net Billing Agreements. Tr. 1097:20-25 (Parrish); PX 5. The participant utilities of the Columbia generating station pay proportionate shares of its operating costs. Tr. 1095:5-21 (Parrish). Their share of the power generated at the Columbia

plant is assigned to BPA and blended with power from federal sources such as hydroelectric energy. Tr. 1096:2-16 (Parrish). They purchase electricity from BPA, but they receive credit from BPA for the payments they have made to Columbia for their share of its operating costs. *Id*. To the extent Plaintiff receives any recovery in this litigation, such recovery diminishes the operating costs of the Columbia station and would be reflected in the net billing statements issued to the participants. PX 5. In addition, a Project Agreement between BPA and Energy Northwest provides that the Columbia annual budget will take account of any "cumulative difference between income and expenditures for the prior contract year." PX 458. The relationship among the three entities -- Energy Northwest, BPA, and the Columbia participants – suggests, therefore, that the participants are the only "reimbursing" third party and as such there would be no windfall or double-payment accruing to Plaintiff. The utility participants, or their ratepayers, ultimately pay all of Columbia's costs, including the costs at issue here. The question of any recoupment of costs from, or reconciliation with, Energy Northwest's customers does not impair Energy Northwest's ability to recover from the Government. *See Hughes Commc'ns Galaxy, Inc. v. United States*, 271 F.3d 1060, 1072 (Fed. Cir. 2001) (reduction of damages by amount plaintiff recouped from customers too remote to consider). The Court finds that Plaintiff has made its claim for damages with reasonable certainty, notwithstanding Defendant's last-minute claim regarding BPA.

Plaintiff May Recover for Cost of Capital to Finance the Dry Cask Storage Project.

The final element of Plaintiff's claim is for $6,068,909 in damages for the expense it incurred in financing the dry cask storage project.

At trial, Mr. Greg Armatrout, Plaintiff's Manager of Finance, testified that Energy Northwest, pursuant to a formal resolution of its executive board, determined to finance a significant portion of the costs of its SNF dry-storage project as a capital project via long-term debt financing. Tr. 1820:5-16 (Armatrout). Initially, in May 2002 it took a $34,518,000 advance against a promissory note to Citibank. Tr. 1828:12-15, 1830:9-19 (Armatrout). The funds from the promissory note were drawn specifically for ISFSI expenses and permitted Plaintiff time to arrange for the issuance of tax-exempt revenue bonds. Pl.'s Resp. in Opp'n to Def.'s Mot. in Limine to Strike Pl.'s Claim for Interest at 3, June 30, 2008; Tr. 1833:12 to 1839:40 (Armatrout). In May 2003, Plaintiff raised $46,071,329 from the sale of 2003-F series bonds. Tr. 1836:12-14 (Armatrout). From the proceeds of the bond sale, Energy Northwest repaid the advance pursuant to the promissory note, paid dry cask storage capital costs incurred in 2003, and paid a pro-rata share of the expenses of the bond issuance. Pl.'s Post-Trial Br. at 73. The balance of approximately $10 million was used for other capital projects not related to the ISFSI. Tr. 1840:1-7 (Armatrout). Plaintiff's claim consists of $941,379.98 in financing charges on the promissory note advance and, through June 30, 2006, $5,127,529.17 in financing costs on the ISFSI portion of the bonds, for a total of $6,068,909. Pl.'s Resp. in Opp'n to Def.'s Mot. in Limine to Strike Pl.'s Claim for Interest at 3-4; Pl.'s Post-Trial Br. at 72-73.

Plaintiff avers that its costs in this regard would not have been incurred but for the Government's partial breach ("actual out-of-pocket damages directly traceable to the mitigation efforts EN was required to undertake"), were reasonably foreseeable at the time of contracting, and are valid expectation damages. Pl.'s Mem. of Contentions of Fact and Law at 49.

The question, as Defendant aptly notes however, is whether such financing costs are the equivalent of interest on a claim and thus not recoverable as a matter of law. As interest on a claim, Plaintiff's recovery would be barred by operation of the "no interest" rule of 28 U.S.C. § 2516(a), which provides:

> Interest on a claim against the United States shall be allowed in a judgment of the United States Court of Federal Claims only under a contract or Act of Congress expressly providing for payment thereof.

Defendant further notes that neither the NWPA nor the Standard Contract contains any provision, express or otherwise, that provides for such interest or that waives, modifies, changes, or nullifies the prohibition found in Section 2516(a).

The distinction, according to Plaintiff, is the recovery of interest "as a claim," rather than "on a claim." Pl.'s Response in Opposition to Def.'s Motion in Limine to Strike Pl.'s Claim for Interest, June 30, 2008, at 9.

Several SNF decisions in this court have grappled with this issue. *See, e.g., Wis. Elec. Power Co. v. United States*, __ Fed. Cl. __, No. 00-697 C, 2009 WL 5178375, (Fed. Cl., Dec. 19, 2009); *Consumers Energy Co. v. United States*, 84 Fed. Cl. 670, 674 (2008); *Dominion Res., Inc. v. United States*, 84 Fed. Cl. 259, 285 (2008); *Carolina Power & Light Co. v. United States*, 82 Fed. Cl. 23, 53 (2008); *Sys. Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 69 (2007); *N. States Power Co.*, 78 Fed. Cl. 449, 471-72 (2007). In none of these cases, however, has the claim for recovery of the cost of financing been so directly traceable to the borrowing for the capital expenditure, in this case, dry storage for SNF in mitigation of the Government's breach. As such, on the facts herein, the issue is squarely joined.

The no-interest rule itself is of vintage duration. As the United States Court of Claims, predecessor to this court, held more than a century ago,

> The delay forced the contractor to borrow money to carry on his contract; for this he was forced to pay interest, an extra expense. The recovery of this sum in this court is forbidden by statute: whether it is claimed in the guise of a damage caused by delay, or in some other form, it remains in fact a claim for interest and such a claim we are prohibited from allowing.

Myerle v. United States, 33 Ct. Cl. 1, 17 (1897).

In *Library of Congress v. Shaw*, 478 U.S. 310, 315-16 (1986), the Supreme Court recounted the history of the no-interest rule as a corollary of the basic rule of sovereign immunity.

> This basic rule of sovereign immunity, in conjunction with the requirement of an agreement to pay interest, gave rise to the rule that interest cannot be recovered unless the award of interest was affirmatively and separately contemplated by Congress.

Id.

The Court noted that the purpose of the rule is intended to give the Government a favored position, protecting it from claims for interest that would otherwise apply between private parties. *Id.* Indeed, the statutory recitation of the Government's immunity from awards of interest in the act creating the United States Court of Claims (manifested currently by 28 U.S.C. § 2516(a)) was but a codification of the traditional rule. *Id.* at 317. The Court further countenanced against evading the rule "by devising a new name for an old institution," citing the United States Court of Claims in *United States v. Mescalero Apache Tribe*, 518 F.2d 1309, 1322 (Ct. Cl. 1975), cert. denied, 425 U.S. 911 (1976):

> [T]he character or nature of "interest" cannot be changed by calling it "damages," "loss," "earned increment," "just compensation," "discount," "offset," or "penalty," or any other term, because it is still interest and the no-interest rule applies to it.

Defendant here argues that Energy Northwest's "financing" claim is nothing more than a disguised claim for interest. In support, it recites for example Plaintiff's description of the annual "interest" paid on the note and the bond, the "interest rate" for the note and bond, and the monthly "interest payment dates and amounts" for the promissory bond. Def.'s Post-Trial Br. at 69; Tr. 1855:17 to 1858:7 (Armatrout). Accordingly, because, as an aspect of sovereign immunity, the no-interest rule is "construed to apply broadly to claims for interest," *England v. Contel Advanced Systems, Inc.*, 384 F.3d 1372, 1379 (Fed. Cir. 2004), Plaintiff's claim is barred by Section 2516(a) and must fail. *England*, the Government argues, makes clear that Plaintiff's distinction between interest as an independent claim and interest "on" a claim is artificial and ineffectual.

In *England*, the plaintiff ("CASI") sought to recover interest on money borrowed to finance its performance of a contract to design, install, and maintain a telecommunication system for the Navy. The implementation phase of the contract was awarded to CASI on a lease to ownership (LTO) basis, incorporating an interest component to compensate for payment over a 60-month period. Because the quantity of certain pieces of equipment was uncertain initially, offerors submitted unit prices. The contract price was based in part on the estimated number of units. The overall contract price was to be adjusted once the necessary units were installed. At the time of system acceptance, the number of units installed was fewer than originally contemplated but the Navy did not adjust the contract price until several years later. The contractor had obtained a third-party loan against which it assigned the Navy's installment payments, although the contractor's method of financing was not dictated by the Navy. Because of the Government was found at fault for the delay in the readjustment of the contract price, the plaintiff incurred a financing charge greater than would otherwise have been required.

The Federal Circuit found that plaintiff's claim was contrary to the no-interest rule. "In other words, CASI is seeking to recover the interest it paid on the extra money it was forced to borrow as a result of the Navy's delay in reconciling the LTO price." *England*, 384 F.3d at 1379. Tellingly for Defendant in the case before the court here, the court in *England* noted,

> The rule has been held not only to bar the recovery of interest on substantive claims against the government . . . but also interest

> costs incurred on money borrowed as a result of the government's breach or delay in payment.

Id. (citing, e.g., *J.D. Hedin Constr. Co. v. United States*, 456 F.2d 1315, 1330 (Ct. Cl. 1972)). The Government points to *Hedin* as even more explicit regarding Plaintiff's effort to evade the stricture of the no-interest rule. "Interest paid on bank loans made because of financial stringency resulting from a breach by the Government of a contract between it and the borrower is not recoverable as an item of damages." *Hedin,* 456 F.2d at 1330.

While it would then appear that *England* and *Hedin* conclusively close the door on Plaintiff's claim for cost of financing, there is additional precedent from the Federal Circuit upon which Plaintiff relies that suggests an exception to the general rule. In *Wickham Contracting Co. v. Fischer*, 12 F.3d 1574 (Fed. Cir. 1994), the construction company had entered into a construction contract (the "Albany project") with the General Services Administration (GSA) for the renovation of a federal post office and courthouse. Due to GSA-imposed delays, the work was not completed for some 900 days after the contracted date. Most of the contractor's claims for additional costs were settled, but the contractor sought additional costs for certain unabsorbed home office overhead and for the cost of both equity capital and borrowed funds during the delay. The court rejected the contractor's claim for interest on equity capital, but noted that "[a]lthough interest on equity capital is not recoverable, a contractor may recover interest actually paid on funds borrowed because of the government's delay in payments and used on the delayed contract." *Id.* at 1582 (citing *Gevyn Constr. Co. v. United States*, 827 F.2d 752, 754 (Fed. Cir. 1987). In *Gevyn*, the court had held, "[28 U.S.C. §] 2516(a) does not bar an interest award as part of an equitable adjustment under a fixed-price contract if the contractor has actually paid interest because of the government's delay in payment." *Gevyn*, 827 F.2d at 754. Nevertheless, the *Wickham* court affirmed the denial of the plaintiff's claim because it failed to show that borrowed funds were used in connection with the Albany project or that the borrowing resulted from the delay. "Wickham did not show that the amount sought based on the borrowed funds was incurred in connection with the Albany project . . . ." *Wickham,* 12 F.3d at 1583.

In *Gevyn*, the contractor had a fixed-price construction contract for the rehabilitation of a veterans hospital. In the course of an equitable adjustment for expenses due to government-caused contract changes and delays, plaintiff sought to recover the cost of financing, both imputed interest based on equity capital and interest on borrowings. The court denied plaintiff's claim for the cost of its equity capital, but recited case law allowing recovery for interest "actually paid," i.e., borrowed funds, because of the government's delay. *Gevyn*, 827 F.2d at 754. The *Gevyn* court specified the two circumstances, neither of which plaintiff met, which would allow the recovery of interest on bank borrowings: "the changed work either must be directly traced to a specific loan or a necessity for increased borrowing must be shown to have been required by extra work or delay caused by the government." *Id.*

Gevyn and the cases it principally relied on suggest that the rationale for the distinction allowing recovery for interest on borrowings as distinct from interest on equity capital is that the former can be clearly ascertained: *Dravo v. United States*, 594 F.2d 842, 847 (Ct. Cl. 1979) ("direct tracing to a specific loan or necessity for increased borrowing is still required to be proven in order for a contractor to recover for interest costs under an equitable adjustment theory."); *Framlau Corp. v. United States*, 568 F.2d 687, 695 (Ct. Cl. 1977) ("[T]he distinction is supported by reason in that the costs to the contractor of borrowing capital is clearly

determinable . . ."); and *Singer Co. v. United States*, 568 F.2d 695, 718 (Ct. Cl. 1977) (interest "recoverable as part of an equitable adjustment where the proof shows it to be a cost incurred in connection with monies required to be borrowed in order to finance a change in the contract," such as "a specific loan undertaken " or, in a course of borrowing, "apart from the normal borrowing pattern, there was a necessity to borrow specifically due to the change in question.").

Defendant here argues that *Wickham, Gevyn*, and the Court of Claims cases cited as precedent are only applicable to the particular circumstances wherein a "Changes" clause authorizes a recovery. In support of this narrow interpretation of *Wickham*, etc., Defendant cites *Bell v. United States*, 404 F.2d 975 (Ct. Cl. 1968),

> The statute [28 U.S.C. §2516(a)] and its policy apply to demands for damages in "breach" claims against the United States where the plaintiff seeks compensation for delay in payment. The demand here is not based upon a "breach" but upon a change compensable under the "Changes" article which entitles the contractor to reimbursement for the resulting "increase . . . in the cost of performance of this contract." Extra interest on the borrowed money became due from [the contractor] because of the slowdown, and under generally accepted principles was undoubtedly an increased cost of contract performance attributable to the change.

Id., 404 F.2d at 984. *Bell* thus allowed recovery of interest costs on borrowed money under a Changes clause as being comparable to the "more tangible costs of construction," but barred a recovery of interest both where it would simply be compensation for the Government's delay in making payments or, in a breach case, where the claimants "had to borrow money because the Government did not timely pay them sums due and owning." *Id.*

It has not been tested at the Federal Circuit, therefore, whether the recoverability of interest on borrowed funds, as stated in *Wickham*, requires the provision of a Changes clause. *See Wis. Elec.*, 2009 WL 5178375 at *80. In other contexts, however, "increased financing costs" have been awarded. *Bluebonnet Sav. Bank v. United States*, 266 F.3d at 1357.

In denying Defendant's Motion in Limine to Strike Plaintiff's Claim for Interest, this Court has already noted that there are exceptions to an absolute prohibition on an award of interest. Dkt. No. 178 at 4. In *Consumers Energy Co. v. United States*, 84 Fed. Cl. 670, 674 (2008), moreover, this Court held that "[t]o recover under *Wickham Const. Co. v. Fischer*, there must be some showing that the funds borrowed were used in connection with the type of mitigation." *Id.* The determination of Energy Northwest's claim for the cost of financing thus keys on whether the exception to the rule as enunciated in *Wickham* necessarily requires the existence of a Changes clause. *See, e.g., Consumers Energy*, 84 Fed. Cl. at 674. If it does, then Plaintiff's claim must be denied, as there is no Changes clause applicable to the Standard Contract. If a Changes clause is not required, the inquiry becomes one of reconciling the decisions of the Federal Circuit in *Wickham* and in *England*.

Contrary to Defendant's reading, the *Wickham* decision itself does not categorically bar a recovery for interest on borrowings in the absence of a Changes clause. In the course of drawing a distinction between claims for interest on equity capital and interest on borrowed funds, the

Wickham court enunciated what may be considered either an exception to the general no-interest rule or a circumstance in which the general rule does not apply (the distinction is not critical). In tracking the precedent upon which *Wickham* relied, this Court is struck not so much by the references in *Gevyn*, *Dravo*, *Framlau*, and *Singer* to Changes clauses and equitable adjustments per se as to the significance of a requirement of traceability. In *Dravo*, for example, the Court of Claims recited approvingly the reasoning of the Army Corps of Engineers Board of Contract Appeals (the Board):

> [I]t was required by current law to show a direct correlation or tracing of the interest costs incurred as a result of specific borrowing to meet the increased financial needs of the changed work. In other words, the Board concluded that there would have to be either a direct loan taken out by the contractor to finance the changed work or the necessity to increase existing borrowing arrangements to finance the changed work shown.

Dravo, 594 F.2d at 845.

Similarly, in *Singer*, the court emphasized that the plaintiff had failed to offer "specific and detailed evidence showing in positive fashion that, as a consequence of the Government's action, the corporation's short term borrowing needs were increased." The court then observed, "Had we such information in this case, the result would obviously be different." *Singer*, 568 F.2d at 720. The Court thus finds that the exception to the no-interest rule enunciated in *Wickham* is not limited to interest claims based on a Changes clause and is therefore applicable to Plaintiff's claim here.

The decision of the Federal Circuit in *England*, issued in 2004, made no reference to the 1994 decision in *Wickham*. The primary focus of the inquiry in *England* was whether the Navy had waived the no-interest rule, pursuant to Section 2516(a), by statute or contract. Plaintiff here has not made a claim for any such waiver and so that aspect of *England* is not pertinent to this analysis. What is pertinent and must be reconciled with the exception noted in *Wickham* is the observation in *England* that the no-interest rule not only bars the recovery of interest on substantive claims "but also interest costs incurred on money borrowed as a result of the government's breach or delay in payment." *England*, 384 F.3d at 1379. On this point, the *England* court cited as authority *Hedin*, *Komatsu Mfg. Co. v. United States*, 131 F. Supp. 949, 950 (Ct. Cl. 1955), *Ramsey v. United States*, 101 F. Supp. 353, 356-57 (Ct. Cl. 1951), and *Myerle*. In *Komatsu*, *Ramsey*, and *Myerle*, it was precisely the Government's delay in making required payments that was the breach and which led to the borrowings which engendered interest costs to the contractors. In *Hedin*, the breach of contract was a wrongful termination, which led to the contractor's need to execute a bank note, and incur extra interest costs, in order to fulfill certain obligations to its surety on the payment and performance bonds. In *England*, the breach was the failure of the Navy to reconcile the LTO price no later than system acceptance, but CASI had already financed the original, full contract price from a third-party lender in order to obtain the Navy's consent to make installment payments directly to that lender.

In all of these cases, the interest costs that the plaintiffs incurred, and which were held not recoverable in light of the no-interest rule, were the costs of borrowings incurred in order to fulfill their obligations under their contracts. As the court in *Myerle* explained, "As to the

interest on borrowed money: The delay forced the contractor to borrow money *to carry on his contract*." *Myerle*, 33 Ct. Cl. at 17 (emphasis added). In *Komatsu*, the court noted, "Because of the delay in payment it was necessary for the plaintiffs to borrow money *in order to continue their operations for the defendant*." *Komatsu*, 131 F. Supp. at 950 (emphasis added).

In the instant case, however, Plaintiff's claim for recovery of interest on the Citibank promissory note and the 2003-F series bonds were not costs incurred "to carry on [its] contract" with the Department of Energy under the Standard Contract. They were, rather, costs incurred clearly "in connection with" its legal obligation to mitigate damages in light of the Government's impending breach regarding the 1998 start of SNF acceptance. See *Indiana Mich. Power Co. v. United States*, 422 F.3d at 1375. Even Defendant's expert witness for financial analysis and cost accounting, Richard L. Johnson, testified that, if Plaintiff's ISFSI expenditures are found to be incremental to Defendant's breach, as the Court so finds here, the financing costs of the ISFSI expenditures "directly traceable" to it would be incremental as well. Tr. 2830:12 to 2831:20 (Johnson).

This Court finds therefore, in the interplay of the Federal Circuit's decisions in *England* and *Wickham*, that interest claims on borrowings directly traceable to the Government's breach, incurred not simply as a result of a delay in payments due from the Government or to "carry on" its end of the contract, are outside the reach of the no-interest rule, as embodied in 28 U.S.C. § 2516(a). Within these parameters, interest *as* an independent claim is recoverable and is distinct from the interest *on* a claim, which is prohibited unless waived by statute or contract. *See Centex Corp. v. United States*, 55 Fed. Cl. 381, 390 (2003).

In addition to its argument on the reach of the no-interest rule, Defendant further argues that, to the extent the Court considers the possibility that interest as a claim may be recoverable, Plaintiff has nevertheless failed to demonstrate that its ISFSI-related borrowing costs were reasonably foreseeable. Defendant maintains, citing *Centex*, that, to establish foreseeability, Plaintiff must show direct proof that the need for borrowed funds in the event of a breach was actually discussed by the parties. *Id.* Defendant proposes much too specific a measure of proof. Just as the Court has found, supra, that Energy Northwest's expenses for dry cask storage were a foreseeable consequence of Defendant's failure to begin acceptance in 1998, its cost of capital expense in financing such a large capital investment as the ISFSI was also foreseeable as a corollary. As Mr. Armatrout testified, it was more practical to spread out the large capital cost of dry storage over the useful life of the project, rather than focus its costs upon ratepayers in the particular operating years. Tr. 1820:17 to 1821:18; 1875:16-25 (Armatrout). As Plaintiff argues in response to Defendant's Centex argument, such a discussion among the parties at the time of contract formation would be but one way to demonstrate foreseeability, but not the only method.

The Court holds that Plaintiff is entitled to recover $6,068,909 as an independent claim for the cost of financing the dry storage of its SNF.

IV. Conclusion

For the reasons stated above, the Court awards damages to Plaintiff in the amount of $56,859,345. The Clerk is directed to enter judgment for Plaintiff in this amount. Pursuant to RCFC 54(d), costs are awarded to Plaintiff.

s/ Edward J. Damich
EDWARD J. DAMICH
Judge