August 12, 2014

L-2014-214
10 CFR 72.30(b)

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-001

RE: Florida Power and Light Company
St. Lucie Units 1 & 2
Docket Nos. 50-335 and 50-389
Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251

NextEra Energy Seabrook, LLC
Seabrook Station
Docket No. 50-443

NextEra Energy Duane Arnold, LLC
Duane Arnold Energy Center
Docket No. 50-331

NextEra Energy Point Beach, LLC
Point Beach Units 1 & 2
Docket Nos. 50-266 and 50-301

Reply to Request for Additional Information for Review of the Decommissioning Funding Plans Regarding the Independent Spent Fuel Storage Installations

Reference:

(1) FPL Letter, L-2012-442, "ISFSI Decommissioning Funding Plans," dated December 17, 2012.

(2) NRC Letter, "Request for Additional Information for Review of the Decommissioning Funding Plans for Florida Power and Light and NextEra Energy Independent Spent Fuel Storage Installations," dated May 23, 2014.

On December 17, 2012, Florida Power and Light Company (FPL), the licensee for the St. Lucie Nuclear Plant, Units 1 and 2, and the Turkey Point Nuclear Plant, Units 3 and 4, and its affiliates, NextEra Energy Seabrook, LLC, the licensee for the Seabrook Station, NextEra Energy Duane Arnold, LLC, the licensee for the Duane Arnold Energy Center, and NextEra Energy Point Beach, LLC, the licensee for the Point Beach Nuclear Plant, Units 1 and 2 (hereafter referred to collectively as "NextEra"), submitted Reference 1, the decommissioning cost estimates in accordance with 10 CFR 72.30(b) for each of the ISFSIs at Duane Arnold Energy Center, Point Beach Units 1 and 2, Seabrook Station, St. Lucie Units 1 and 2, and Turkey Point Units 3 and 4. On May 23, 2014, NRC staff issued Reference 2, requesting that additional information was required in order to complete their review. The FPL and NextEra Energy responses to Reference 2 are provided in the attachment and corresponding enclosures to this letter.

NMSS26
NMSS2

This letter contains no new Regulatory Commitments and no revision to existing Regulatory Commitments.

If you have any questions or require additional information, please contact Mark Dryden at (561) 694-4430.

Sincerely yours,

James M. Petro, Jr.
Nuclear Licensing and Regulatory Compliance Director

Attachment (1)
Enclosures (6)

cc: Electronic Distribution:
Regional Administrator, Region I
Regional Administrator, Region II
Regional Administrator, Region III
USNRC Project Manager, Turkey Point and St. Lucie
Senior Resident Inspector, USNRC, Turkey Point
Senior Resident Inspector, USNRC, St. Lucie
USNRC Project Manager, Seabrook Station
Senior Resident Inspector, USNRC, Seabrook Station
USNRC Project Manager, Duane Arnold
Senior Resident Inspector, USNRC, Duane Arnold
USNRC Project Manager, Point Beach
Senior Resident Inspector, Point Beach

NRC Request 1: Decommissioning Costs

On December 17, 2012, FPL provided decommissioning cost estimates for each of the ISFSIs at Duane Arnold Energy Center, Point Beach Units 1 and 2, Seabrook Station, St. Lucie Units 1 and 2, and Turkey Point Units 3 and 4. These estimates are stated to be derived from a detailed Decommissioning Study (DS) for each unit. However, copies of, or the ADAMS references to the DSs were not made available for analysis.

Under 10 CFR 72.30(b)(2):

> Each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that must contain: ... A detailed cost estimate for Decommissioning, in an amount reflecting: (i) The cost of an independent contractor to perform all decommissioning activities; (ii) An adequate contingency factor; and (iii) The cost of meeting the § 20.1402 of this chapter criteria for unrestricted use, provided that, if the applicant or licensee can demonstrate its ability to meet the provisions of § 20.1403 of this chapter, the cost estimate may be based on meeting the § 20.1403 criteria.

The NRC staff needs either the DS for each reactor unit to determine how each ISFSI Decommissioning cost estimate was derived from these DSs, or other information that demonstrates how each ISFSI decommissioning cost estimate was developed. The information that FPL submitted does not show how it calculated the cost of an independent contractor to perform the decommissioning activities or the cost to decommission to unrestricted use levels in 10 CFR 20.1402.

This detailed cost estimate information is needed to determine compliance with 10 CFR 72.30(b)(2). Guidance on financial assurance and compliance with 10 CFR 72.30(b) is provided in NUREG-1757, Vol. 3, Rev. 1, "Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness," located at ADAMS Accession No. ML12048A683. NUREG-1757, Vol. 3, Rev. 1 was issued in February 2012 and is compatible with the changes in the Decommissioning Planning Final Rule (76 FR 35512; June 17, 2011) and the current 10 CFR 72.30 requirements, which became effective on December 17, 2012. Specific guidance on cost estimates is provided in Sections 4.1 and A.3.1 of this guidance.

Please provide either the most recent DS for each reactor unit (or if previously submitted to NRC, reference the ADAMS Accession Number or the date submitted to NRC) or other information that demonstrates how each ISFSI decommissioning cost estimate was developed.

This information is needed to verify compliance with 10 CFR 72.30(b)(2).

FPL and NextEra Energy's Response 1:

As stated in its December 17, 2012 submittal, FPL/NextEra obtained site-specific ISFSI decommissioning cost estimates in 2013. The site-specific ISFSI decommissioning cost estimates are provided for St. Lucie, Turkey Point, Seabrook Station, Duane Arnold and Point Beach, as Enclosures 1 through 5, respectively. These cost estimates are intended to supersede the estimates provided in the December 17, 2012 submittal, which were excerpted from existing site-specific reactor decommissioning cost estimates. The new ISFSI-specific cost estimates (provided in 2012 dollars) include the cost of an independent contractor as well as the cost to decommission to unrestricted use levels in 10 CFR 20.1402.

NRC Request 2: Certification of Financial Assurance

On December 17, 2012, FPL stated for each licensee on whose behalf it submitted a decommissioning funding plan:

> Decommissioning is defined in 10 CFR 50.2 as the removal of a site from service and reduction of residual radioactivity to a level that permits the termination of the license, so the Part 50 license cannot be terminated until the ISFSI meets residual radioactivity requirements. As a result, the decommissioning of an ISFSI with a Part 72 general license is necessarily a Part 50 decommissioning cost covered by 10 CFR 50.75.
>
> For this reason, the attached ISFSI Decommissioning Funding Plans rely on "the methods of 10 CFR 50.75(b), (e), and (h), as applicable" as allowed under new 10 CFR 72.30(e)(5), to demonstrate ISFSI decommissioning financial assurance and do not provide either a new ISFSI-specific decommissioning cost estimate or new ISFSI specific decommissioning financial assurance methods. Specifically, the Decommissioning Funding Plans rely on the most recent biennial decommissioning funding status reports submitted to the NRC pursuant to 10 CFR 50.75.

It is not evident from FPL's Decommissioning Funding Status reports submitted in 2011 (ADAMS Accession No. ML110840036), FPL's Decommissioning Funding Status reports submitted in 2013 (ADAMS Accession No. ML13093A156), or FPL's ISFSI-related submission of December 17, 2012, that funds specific to ISFSI decommissioning are accounted for in either the radiological or non-radiological portions of FPL's decommissioning trust accounts. Accordingly, the NRC staff cannot determine whether funds for ISFSI decommissioning reside within FPL's trust accounts.

Under § 72.30(e)(5), licensees can use the financial assurance <u>methods</u> in 10 CFR 50.75(b), (e), and (h), as applicable, to satisfy § 72.30. However, to satisfy 10 CFR 72.30, the funds set aside to cover the costs of decommissioning the ISFSI cannot be the same funds the licensee will use for the Part 50 reactor decommissioning. Note that the minimum amount in 10 CFR 50.75(c) is not intended to cover the ISFSI decommissioning costs. The funds necessary to satisfy the Part 50 reactor Decommissioning financial assurance requirements are not to include costs for ISFSI decommissioning. A licensee can hold ISFSI decommissioning and reactor decommissioning funds in the same financial instrument, but the licensee must be able to show that ISFSI decommissioning and reactor decommissioning funds are separately tracked. Also, 10 CFR 72.30(e)(5) references "the financial assurance methods in 10 CFR 50.75(b), (e), and (h), as applicable," but does not reference 10 CFR 50.75(f), which concerns reactor decommissioning cost estimates.

For the above reasons, it is not clear to the NRC staff if your certification meets the 10 CFR 72.30(b) requirements, under which a licensee must certify that financial assurance for decommissioning its ISFSI has been provided. This certification must show that such financial assurance equals the amount of the ISFSI decommissioning cost estimate. Specifically, under 10 CFR 72.30(b)(4):

> Each holder of, or applicant for a license under this part must submit for NRC review and approval a decommissioning funding plan that must contain: ... A description of the method of assuring funds for decommissioning from paragraph (e) of this section, including means for adjusting cost estimates and associated funding levels periodically over the life of the facility.

Further, under 10 CFR 72.30(b)(6):

> Each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that must contain: ... A certification that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning.

If funds from a Part 50 external sinking fund are to be used for Part 72 decommissioning, the NRC staff must be able to determine that adequate funds for ISFSI decommissioning reside within your external sinking fund. Moreover, these funds need to be reported separately for each ISFSI and be identified as a separate line item.

Therefore, the staff requests that you provide:

1. The breakdown of the decommissioning trust funds for the ISFSIs, including subaccounts, titles, and funding levels;

2. Identification of all additional funding methods or mechanisms that are currently being used (such as a parent company guarantee) to supplement the external sinking fund or other ISFSI decommissioning funding method(s) being used; and

3. The current funding amounts in, or represented by, all such funding methods.

   Please note: For all such funding methods, funds may be held in separate subaccounts that are identified for ISFSI decommissioning.

4. If in your previous 10 CFR 50.75(f) report you reported a single amount that included both estimated reactor and ISFSI decommissioning costs, then you should explicitly identify in your response (1) the estimated reactor decommissioning cost and (2) the estimated ISFSI decommissioning cost.

   Please note: Future 10 CFR 50.75(f) reports should clearly delineate estimated reactor and ISFSI decommissioning costs.

This information is needed to verify compliance with 10 CFR 72.30(b).

FPL and NextEra Energy's Response 2:

FPL/NextEra and its joint owners have collected or prepaid funds for radiological decommissioning necessary for the ultimate termination of its reactor operating licenses under 10 CFR 50.75. The table set forth below specifically identifies: (1) decommissioning trust fund values as of December 31, 2013; (2) the projected values at shutdown; (3) the estimated reactor decommissioning costs based on the NRC minimum formula amount, as calculated for the December 31, 2013 annual review; (4) the amount of surplus in the Part 50 trust funds (i.e., the difference between (2) and (3)); and (5) the estimated ISFSI decommissioning cost, escalated to 2013 dollars. The amount of surplus in each Part 50 external sinking fund is more than sufficient to fund the estimated ISFSI decommissioning cost.

All values in the table are reported in 2013 dollars.

Site	Trust Balance as of 12/31/13 ($Thousands) (2)	Projected 10 CFR 50.75 Decommissioning Trust Fund Value ($Thousands)	NRC Minimum Amount per 10 CFR 50.75(b) ($Thousands)	Decommissioning Trust Fund Value Surplus ($Thousands)	ISFSI Decommissioning Cost Estimate ($Thousands)
St. Lucie Unit 1	887,381	1,376,794	501,196	875,598	2,268
St. Lucie Unit 2 - FPL	746,401	1,332,919	427,045	905,875	1,930
St. Lucie Unit 2 - FMPA	62,079	110,861	43,837	67,024	200
St. Lucie Unit 2 - OUC	38,954	69,563	30,314	39,249	138
Turkey Point Unit 3	736,415	1,063,545	484,870	578,675	2,057
Turkey Point Unit 4	831,043	1,217,590	484,870	732,720	2,057
Seabrook - NextEra	506,124	749,619	470,122	279,497	2,917
Seabrook - MMWEC	47,446	70,272	61,775	8,498	384
Seabrook - Tauton	593	879	535	344	3
Seabrook - Hudson	452	669	412	257	2
Duane Arnold - NextEra	298,850	478,566	428,615	49,952	2,138
Duane Arnold - Corn Belt (1)	25,508	65,117	61,231	3,887	306
Duane Arnold - CIPCO	54,584	139,344	122,461	16,883	611
Point Beach Unit 1	349,537	523,460	452,492	70,968	1,563
Point Beach Unit 2	329,345	517,339	452,492	64,847	1,563

(1) On May 2, 2014, Corn Belt Board of Directors issued a resolution to change the decommissioning real rate of return to 4%. The projected balance reflects this change. (See attached Board Resolution dated May 2, 2014 - Enclosure 6)

(2) As reported in previous biennial reports, the decommissioning trust funds for Turkey Point, St. Lucie, and Seabrook include non-segregated funds collected for spent fuel management and site restoration. As instructed by NRC, FPL/NextEra reports the total fund balance in its biennial reports and here. Due to the relative size of the ISFSI decommissioning cost estimate compared to the projected balances and the additional time available prior to commencement of ISFSI decommissioning, the ISFSI cost estimate does not significantly alter the reactor decommissioning allocations previously described.

Enclosure 1

10 CFR 72.30 ISFSI Decommissioning Cost Estimate

1. Background and Introduction

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with the rule, this letter provides a detailed cost estimate for decommissioning the ISFSI at St. Lucie in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402.

This letter also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

2. Spent Fuel Management Strategy

The operating licenses for Units 1 and 2 at St. Lucie are currently set to expire on March 1, 2036 and April 6, 2043, respectively. Approximately 6,822 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration dates.

Under the current spent fuel management plan, and assuming that the units operate to the end of their currently licensed lives, approximately 2,720 spent fuel assemblies in 85 modules will have been relocated to the ISFSI during Unit 1 plant operations. Another 1,478 spent fuel assemblies are expected to be transferred to the ISFSI once operations cease (fuel that cannot be directly transferred from the pools to the DOE within the first 5 years of pool operations).

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[1] U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

To facilitate immediate dismantling or safe-storage operations, the spent fuel is assumed to be packaged in dry storage containers (DSCs) for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and fuel pool areas or resulting in reduced operating expenses should the station be placed into a SAFSTOR dormancy configuration.

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor.[2] For purposes of this analysis, Florida Power & Light Company's (FPL) current spent fuel management plan for the St. Lucie spent fuel [3] is based upon the first assemblies being removed from the site in 2032. Assuming a maximum rate of transfer of 3,000 metric tons of uranium/year,[4] the spent fuel is projected to be completely removed from the St. Lucie site in 2073.

3. ISFSI Decommissioning Strategy

At the conclusion of the spent fuel transfer process the ISFSI will be promptly decommissioned (similar to the power reactor DECON alternative) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

For purposes of providing an estimate for a funding plan, financial assurance is expected to be provided on the basis of a prompt ISFSI decommissioning scenario. In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear power plant.

4. ISFSI Description

The St. Lucie ISFSI is based upon a NUHOMS®-32PTH dry storage system and is operated under a general license (10 CFR Part 50). The NUHOMS® system is comprised of a DSC and a horizontal storage module (HSM). The DSCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining HSMs are assumed to have residual radioactivity due to some minor level of neutron-

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2 U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) ... DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as ..."

3 "Decommissioning Cost Analysis for the St. Lucie Nuclear Plant, Units 1 and 2," prepared for Florida Power & Light Company by TLG Services, Inc., Document No. F02-1630-001, Rev. 0, December 2010

4 "Acceptance Priority Ranking & Annual Capacity Report," DOE/RW-0567, July 2004

induced activation as a result of the long-term storage of the spent fuel. The cost to dispose of residual radioactivity, and verify that the remaining facility and surrounding environs meet the NRC's radiological limits established for unrestricted use, form the basis of the ISFSI decommissioning estimate.

FPL's current spent fuel management plan for the St. Lucie spent fuel would result in 132 HSMs (nominal 32 assemblies per DSC) being in position on the storage pad at the site after all spent fuel has been removed from the spent fuel pools. This represents 62% of the total spent fuel projected to be generated during the currently licensed operating period.

In addition to the spent fuel HSMs located on the ISFSI pad after shutdown there are projected to be additional HSMs that are expected to be used for Greater-than-Class-C (GTCC) storage. The HSMs used for the GTCC canisters (estimated quantity of 8) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

5. Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the two units at St. Lucie operating until the end of their current licenses, March 1, 2036 and April 6, 2043, respectively, and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The nominal size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is expected to be approximately 287 feet in width, and 457 feet in length.

It is not expected that the HSMs will have any interior or exterior radioactive surface contamination. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Any neutron activation of the steel and concrete is expected to be extremely small. To validate this assumption, the estimate accounts for characterization of 10% of the HSMs; it is likely that some of this characterization will take place well before the last of the fuel is removed from the ISFSI in order to establish a more definitive decommissioning scope.

The decommissioning estimate is based on the premise that some of the DSC support structure within the HSMs will contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an allowance, 14 of the 132 HSMs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of DSCs required for the

final core off-load (i.e., 217 offloaded assemblies per unit for 434 total, 32 assemblies per DSC) which results in a total of approximately 14 HSMs that contain residual radioactivity.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

FPL has no record of onsite subsurface material associated with the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

To support an application for License Termination, the estimate assumes that a Final Status Survey will be performed; this will include a 100% survey of the ISFSI pad and the immediate area surrounding the pad, and a significant fraction of the HSMs surfaces.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. FPL, as licensee, will oversee the site activities; the estimate includes FPL's labor and overhead costs. The licensee's costs are based upon current, average, fleet salaries and associated expenses, for selected positions.

Low-level radioactive waste transport and disposal costs are based on rates consistent with the most recently developed decommissioning cost estimate (year 2010 dollars), escalated to 2012 dollars.

Costs are reported in 2012 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.[5]

The estimate is limited to costs necessary to terminate the ISFSI's NRC license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

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5 "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

6. Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2. The cost has been organized into three phases, including:

- An initial planning phase - empty HSMs are characterized and the specifications and work procedures for the decontamination (DSC support structure removal) developed.
- The remediation phase - residual radioactivity is removed, packaged in certified waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor), FPL's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it should be conservatively assumed that all expenditures will be incurred in the year 2074, the year following all spent fuel removal.

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (ft)	Width (ft)	Residual Radioactivity
ISFSI Pad	457	287	No

ISFSI Horizontal Storage Module

Item	Value	Notes (all dimensions are nominal)
Outside Height (inches)	222	without vent cover
Outside Length (inches)	248	without shield walls
Outside Width (inches)	116	without shield walls
Quantity (total)	140	Spent Fuel (132) GTCC (8)
Quantity (with residual radioactivity)	14	Equivalent to the number of HSMs used to store last complete core offload
HSM Internal Steel with Residual Radioactivity (pounds)	68,600	
Low-Level Radioactive Waste (cubic feet)	1,292	
Low-Level Radioactive Waste (packaged density)	55	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of HSMs used for GTCC storage	8	no residual radioactivity

Table 2
ISFSI Decommissioning Costs[1] and Waste Volumes

	(thousands, 2012 dollars)						Waste Volume	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total	(ft3)	Contractor	Licensee	NRC / NRC Contractor
Decommissioning Contractor										
Planning (characterization, specs and procedures)	-	-	-	-	239	239	-	18,722	-	-
Remediation (activated metal removal)	413	7	21	262	53	756	1,292	-	-	-
License Termination (radiological surveys)	-	-	-	-	1,670	1,670	-	17,642	-	-
Subtotal	413	7	21	262	1,962	2,665	1,292	36,365	-	-
Supporting Costs										
NRC and NRC Contractor Fees and Costs	-	-	-	-	177	177	-	-	-	776
Insurance	-	-	-	-	171	171	-	-	-	-
Florida LLRW Inspection Fee	-	-	-	-	3	3	-	-	-	-
Security (industrial)	-	-	-	-	232	232	-	6,193	-	-
Licensee Oversight Staff	-	-	-	-	327	327	-	-	4,698	-
Subtotal	-	-	-	-	910	910	-	6,193	4,698	776
Total (w/o contingency)	413	7	21	262	2,872	3,574	1,292	42,558	4,698	776
Total (w/25% contingency)	516	9	27	327	3,589	4,468				

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2074

Enclosure 2

10 CFR 72.30 ISFSI Decommissioning Cost Estimate

1. Background and Introduction

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with the rule, this letter provides a detailed cost estimate for decommissioning the ISFSI at Turkey Point in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402.

This letter also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

2. Spent Fuel Management Strategy

The operating licenses for Units 3 and 4 at Turkey Point are currently set to expire on July 19, 2032 and April 10, 2033, respectively. Approximately 4,660 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration dates.

Under the current spent fuel management plan, and assuming that the units operate to the end of their currently licensed lives, approximately 2,112 spent fuel assemblies in 66 modules will have been relocated to the ISFSI during plant operations. Another 1,684 spent fuel assemblies are expected to be transferred to the ISFSI once operations cease (fuel that cannot be directly transferred from the pools to the DOE within the first 5 years of pool operations).

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1 U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

To facilitate immediate dismantling or safe-storage operations, the spent fuel is assumed to be packaged in dry storage containers (DSCs) for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and fuel pool areas or resulting in reduced operating expenses should the station be placed into a SAFSTOR dormancy configuration.

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor.[2] For purposes of this analysis, Florida Power & Light Company's (FPL) current spent fuel management plan for the Turkey Point spent fuel [3] is based upon the first assemblies being removed from the site in 2031. Assuming a maximum rate of transfer of 3,000 metric tons of uranium/year,[4] the spent fuel is projected to be completely removed from the Turkey Point site in 2072.

3. ISFSI Decommissioning Strategy

At the conclusion of the spent fuel transfer process the ISFSI will be promptly decommissioned (similar to the power reactor DECON alternative) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

For purposes of providing an estimate for a funding plan, financial assurance is expected to be provided on the basis of a prompt ISFSI decommissioning scenario. In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear power plant.

4. ISFSI Description

The Turkey Point ISFSI is based upon a NUHOMS®-32PT dry storage system and is operated under a general license (10 CFR Part 50). The NUHOMS® system is comprised of a DSC and a horizontal storage module (HSM). The DSCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining HSMs are assumed to have residual radioactivity due to some minor level of neutron-

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2 U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) ... DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as ..."

3 "Decommissioning Cost Analysis for the Turkey Point Nuclear Plant, Units 3 and 4," prepared for Florida Power & Light Company by TLG Services, Inc., Document No. F02-1630-002, Rev. 0, December 2010

4 "Acceptance Priority Ranking & Annual Capacity Report," DOE/RW-0567, July 2004

induced activation as a result of the long-term storage of the spent fuel. The cost to dispose of residual radioactivity, and verify that the remaining facility and surrounding environs meet the NRC's radiological limits established for unrestricted use, form the basis of the ISFSI decommissioning estimate.

FPL's current spent fuel management plan for the Turkey Point spent fuel would result in 120 HSMs (nominal 32 assemblies per DSC) being in position on the storage pad at the site after all spent fuel has been removed from the spent fuel pools. This represents 82% of the total spent fuel projected to be generated during the currently licensed operating period.

In addition to the spent fuel HSMs located on the ISFSI pad after shutdown there are projected to be additional HSMs that are expected to be used for Greater-than-Class-C (GTCC) storage. The HSMs used for the GTCC canisters (estimated quantity of 6) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

5. Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the two units at Turkey Point operating until the end of their current licenses, July 19, 2032 and April 10, 2033, respectively, and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The nominal size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is expected to be approximately 128 feet in width, and 780 feet in length.

It is not expected that the HSMs will have any interior or exterior radioactive surface contamination. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Any neutron activation of the steel and concrete is expected to be extremely small. To validate this assumption, the estimate accounts for characterization of 10% of the HSMs; it is likely that some of this characterization will take place well before the last of the fuel is removed from the ISFSI in order to establish a more definitive decommissioning scope.

The decommissioning estimate is based on the premise that some of the DSC support structure within the HSMs will contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an allowance, 10 of the 120 HSMs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of DSCs required for the

final core off-load (i.e., 157 offloaded assemblies per unit for 314 total, 32 assemblies per DSC) which results in a total of approximately 10 HSMs that contain residual radioactivity.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

FPL has no record of onsite subsurface material associated with the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

To support an application for License Termination, the estimate assumes that a Final Status Survey will be performed; this will include a 100% survey of the ISFSI pad and the immediate area surrounding the pad, and a significant fraction of the HSMs surfaces.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. FPL, as licensee, will oversee the site activities; the estimate includes FPL's labor and overhead costs. The licensee's costs are based upon current, average, fleet salaries and associated expenses, for selected positions.

Low-level radioactive waste transport and disposal costs are based on rates consistent with the most recently developed decommissioning cost estimate (year 2010 dollars), escalated to 2012 dollars.

Costs are reported in 2012 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.[5]

The estimate is limited to costs necessary to terminate the ISFSI's NRC license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

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5 "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

6. Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2. The cost has been organized into three phases, including:

- An initial planning phase - empty HSMs are characterized and the specifications and work procedures for the decontamination (DSC support structure removal) developed.
- The remediation phase - residual radioactivity is removed, packaged in certified waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor), FPL's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it should be conservatively assumed that all expenditures will be incurred in the year 2073, the year following all spent fuel removal.

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (ft)	Width (ft)	Residual Radioactivity
ISFSI Pad	780	128	No

ISFSI Horizontal Storage Module

Item	Value	Notes (all dimensions are nominal)
Outside Height (inches)	222	without vent cover
Outside Length (inches)	248	without shield walls
Outside Width (inches)	116	without shield walls
Quantity (total)	126	Spent Fuel (120) GTCC (6)
Quantity (with residual radioactivity)	10	Equivalent to the number of HSMs used to store last complete core offload
HSM Internal Steel with Residual Radioactivity (pounds)	48,980	
Low-Level Radioactive Waste (cubic feet)	958	
Low-Level Radioactive Waste (packaged density)	54	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of HSMs used for GTCC storage	6	no residual radioactivity

Table 2
ISFSI Decommissioning Costs[1] and Waste Volumes

	(thousands, 2012 dollars)						Waste Volume	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total	(ft3)	Contractor	Licensee	NRC / NRC Contractor
Decommissioning Contractor										
Planning (characterization, specs and procedures)	-	-	-	-	216	216	-	15,536	-	-
Remediation (activated metal removal)	384	6	16	189	53	648	958	-	-	-
License Termination (radiological surveys)	-	-	-	-	1,468	1,468	-	14,480	-	-
Subtotal	384	6	16	189	1,737	2,332	958	30,015	-	-
Supporting Costs										
NRC and NRC Contractor Fees and Costs	-	-	-	-	176	176	-	-	-	776
Insurance	-	-	-	-	171	171	-	-	-	-
Florida LLRW Inspection Fee	-	-	-	-	2	2	-	-	-	-
Security (industrial)	-	-	-	-	235	235	-	6,193	-	-
Licensee Oversight Staff	-	-	-	-	327	327	-	-	4,698	-
Subtotal	-	-	-	-	911	911	-	6,193	4,698	776
Total (w/o contingency)	384	6	16	189	2,648	3,243	958	36,208	4,698	776
Total (w/25% contingency)	480	7	21	236	3,310	4,054				

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2073

Enclosure 3

10 CFR 72.30 ISFSI Decommissioning Cost Estimate

1. Background and Introduction

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with the rule, this letter provides a detailed cost estimate for decommissioning the ISFSI at Seabrook Station in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402.

This letter also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

2. Spent Fuel Management Strategy

The operating license for Seabrook Station is currently set to expire on March 15, 2030. Approximately 2,330 spent fuel assemblies are projected to be generated as a result of plant operations through the license expiration date.

Assuming that the unit operates to the end of its currently licensed life, and no spent fuel is transferred to the DOE during this time period, approximately 1,120 spent fuel assemblies in 35 modules will have been relocated to the ISFSI during plant operations. The remaining 1,210 spent fuel assemblies are expected to be transferred to the ISFSI once operations cease.

To facilitate immediate dismantling or safe-storage operations, the spent fuel is assumed to be packaged in dry storage containers (DSCs) for interim storage at the ISFSI.

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1 U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and fuel pool areas or resulting in reduced operating expenses should the station be placed into a SAFSTOR dormancy configuration.

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor.[2] However, for purposes of this analysis, NextEra Energy Seabrook, LLC's (NextEra) current spent fuel management plan for the Seabrook Station spent fuel is based on the New Hampshire Nuclear Decommissioning Finance Committee's directive in its 2009 Order. In that Order, fuel is assumed to remain on site until 2100.[3]

3. ISFSI Decommissioning Strategy

At the conclusion of the spent fuel transfer process the ISFSI will be promptly decommissioned (similar to the power reactor DECON alternative) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

For purposes of providing an estimate for a funding plan, financial assurance is expected to be provided on the basis of a prompt ISFSI decommissioning scenario. In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear power plant.

4. ISFSI Description

The Seabrook Station ISFSI is based upon a NUHOMS®-HD-32PTH dry storage system and operated under a general license (10 CFR Part 50). The NUHOMS® system is comprised of a DSC and a horizontal storage module (HSM). The DSCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining HSMs are assumed to have residual radioactivity due to some minor level of neutron-induced activation as a result of the long-term storage of the spent fuel. The cost to dispose of residual radioactivity, and verify that the remaining facility and surrounding environs meet the NRC's radiological limits established for unrestricted use, form the basis of the ISFSI decommissioning estimate.

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2 U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) ... DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as ..."

3 New Hampshire Nuclear Decommissioning Financing Committee's December 30, 2009 Final Report and Order in Docket NDFC 2009-1

NextEra's current spent fuel management plan for the Seabrook Station spent fuel would result in 73 HSMs (nominal 32 assemblies per DSC) being in position on the storage pad at the site after all spent fuel has been removed from the spent fuel pool. This represents 100% of the total spent fuel projected to be generated during the currently licensed operating period.

In addition to the spent fuel HSMs located on the ISFSI pad after shutdown there are projected to be additional HSMs that are expected to be used for Greater-than-Class-C (GTCC) storage. The HSMs used for the GTCC canisters (estimated quantity of 4) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

5. Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on Seabrook Station operating until the end of its current license, March 15, 2030, and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The nominal size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is expected to be approximately 123 feet in width, and 462 feet in length.

It is not expected that the HSMs will have any interior or exterior radioactive surface contamination. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Any neutron activation of the steel and concrete is expected to be extremely small. To validate this assumption, the estimate accounts for characterization of 10% of the HSMs; it is likely that some of this characterization will take place well before the last of the fuel is removed from the ISFSI in order to establish a more definitive decommissioning scope.

The decommissioning estimate is based on the premise that some of the DSC support structure within the HSMs will contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an allowance, 7 of the 73 HSMs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of DSCs required for the final core off-load (i.e., 193 offloaded assemblies, 32 assemblies per DSC) which results in a total of approximately 7 HSMs that contain residual radioactivity.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. It is expected that this assumption would be confirmed as a result of good

radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

NextEra has no record of onsite subsurface material associated with the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

To support an application for License Termination, the estimate assumes that a Final Status Survey will be performed; this will include a 100% survey of the ISFSI pad and the immediate area surrounding the pad, and a significant fraction of the HSMs surfaces.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. NextEra, as licensee, will oversee the site activities; the estimate includes NextEra's labor and overhead costs. The licensee's costs are based upon current, average, fleet salaries and associated expenses, for selected positions.

Low-level radioactive waste transportation and disposal costs are based on rates consistent with the most recently developed decommissioning cost estimate (year 2010 dollars), escalated to 2012 dollars.

Costs are reported in 2012 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.[4]

The estimate is limited to costs necessary to terminate the ISFSI's NRC license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

6. Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2. The cost has been organized into three phases, including:

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4 "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

- An initial planning phase - empty HSMs are characterized and the specifications and work procedures for the decontamination (DSC support structure removal) developed.
- The remediation phase - residual radioactivity is removed, packaged in certified waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor), NextEra's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it should be conservatively assumed that all expenditures will be incurred in the year 2101, the year following all spent fuel removal.

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (ft)	Width (ft)	Residual Radioactivity
ISFSI Pad	462	123	No

ISFSI Horizontal Storage Module

Item	Value	Notes (all dimensions are nominal)
Outside Height (inches)	222	without vent cover
Outside Length (inches)	248	without shield walls
Outside Width (inches)	116	without shield walls
Quantity (total)	77	Spent Fuel (73) GTCC (4)
Quantity (with residual radioactivity)	7	Equivalent to the number of HSMs used to store last complete core offload
HSM Internal Steel with Residual Radioactivity (pounds)	34,300	
Low-Level Radioactive Waste (cubic feet)	686	
Low-Level Radioactive Waste (packaged density)	53	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of HSMs used for GTCC storage	4	no residual radioactivity

Table 2
ISFSI Decommissioning Costs[1] and Waste Volumes

	(thousands, 2012 dollars)						Waste Volume	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total	(ft3)	Contractor	Licensee	NRC / NRC Contractor
Decommissioning Contractor										
Planning (characterization, specs and procedures)	-	-	-	-	218	218	-	11,296	-	-
Remediation (activated metal removal)	245	4	12	133	53	446	686	-	-	-
License Termination (radiological surveys)	-	-	-	-	1,173	1,173	-	10,360	-	-
Subtotal	245	4	12	133	1,444	1,837	686	21,655	-	-
Supporting Costs										
NRC and NRC Contractor Fees and Costs	-	-	-	-	176	176	-	-	-	776
Insurance	-	-	-	-	95	95	-	-	-	-
NH Disposal Tax	-	-	-	-	13	13	-	-	-	-
Security (industrial)	-	-	-	-	224	224	-	5,078	-	-
Licensee Oversight Staff	-	-	-	-	261	261	-	-	3,853	-
Subtotal	-	-	-	-	769	769	-	5,078	3,853	776
Total (w/o contingency)	245	4	12	133	2,213	2,606	686	26,734	3,853	776
Total (w/25% contingency)	306	5	15	166	2,766	3,257				

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2101

Enclosure 4

10 CFR 72.30 ISFSI Decommissioning Cost Estimate

1. Background and Introduction

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with the rule, this letter provides a detailed cost estimate for decommissioning the ISFSI at Duane Arnold in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402.

This letter also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

2. Spent Fuel Management Strategy

The operating license for Duane Arnold is currently set to expire on February 21, 2034. Approximately 4,712 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration date.

Under the current spent fuel management plan and assuming that the unit operates to the end of its currently licensed life, approximately 1,891 spent fuel assemblies in 31 modules will have been relocated to the ISFSI during plant operations. Another 1,281 spent fuel assemblies are expected to be transferred to the ISFSI once operations cease (fuel that cannot be directly transferred from the pools to the DOE within the first 5 years of pool operations).

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1 U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

To facilitate immediate dismantling or safe-storage operations, the spent fuel is assumed to be packaged in dry storage containers (DSCs) for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and fuel pool areas or resulting in reduced operating expenses should the station be placed into a SAFSTOR dormancy configuration.

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor.[2] For purposes of this analysis, NextEra Energy Duane Arnold, LLC's (NextEra) current spent fuel management plan for the Duane Arnold spent fuel[3] is based in general upon: 1) a 2025 start date for DOE initiating transfer of commercial spent fuel to a federal facility (not necessarily a final repository), and 2) expectations for spent fuel receipt by the DOE for the Duane Arnold fuel. The DOE's generator allocation/receipt schedules are based upon the oldest fuel receiving the highest priority. Assuming a maximum rate of transfer of 3,000 metric tons of uranium/year,[4] the spent fuel is projected to be removed from the Duane Arnold site in 2067.

3. ISFSI Decommissioning Strategy

This analysis assumes that, at the conclusion of the spent fuel transfer process, the ISFSI will be promptly decommissioned by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

For purposes of providing an estimate for a funding plan, financial assurance is expected to be provided on the basis of a prompt ISFSI decommissioning scenario. In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear power plant.

4. ISFSI Description

The Duane Arnold ISFSI is based upon a NUHOMS®-61BT dry storage system and is operated under a general license (10 CFR Part 50). The NUHOMS® system is comprised of a DSC and a horizontal storage module (HSM). The DSCs are assumed to be

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2 U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) ... DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as ..."

3 "Decommissioning Cost Study for the Duane Arnold Energy Center," prepared for FPL Energy Duane Arnold, LLC by Energy*Solutions*, Document No 82A9634, Rev. 1, January 2010

4 "Acceptance Priority Ranking & Annual Capacity Report," DOE/RW-0567, July 2004

transferred directly to the DOE and not returned to the station. Some of the remaining HSMs are assumed to have residual radioactivity due to some minor level of neutron-induced activation as a result of the long-term storage of the spent fuel. The cost to dispose of residual radioactivity, and verify that the remaining facility and surrounding environs meet the NRC's radiological limits established for unrestricted use, form the basis of the ISFSI decommissioning estimate.

NextEra's current spent fuel management plan for the Duane Arnold spent fuel would result in 52 HSMs (nominal 61 assemblies per DSC) being in position on the storage pad at the site after all spent fuel has been removed from the spent fuel pool. This represents 67% of the total spent fuel projected to be generated during the currently licensed operating period.

In addition to the spent fuel HSMs located on the ISFSI pad after shutdown there are projected to be additional HSMs that are expected to be used for Greater-than-Class-C (GTCC) storage. The HSMs used for the GTCC canisters (estimated quantity of 2) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

5. Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on Duane Arnold operating until the end of its current license, February 21, 2034, and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The nominal size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is expected to be approximately 122 feet in width, and 502 feet in length.

It is not expected that the HSMs will have any interior or exterior radioactive surface contamination. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Any neutron activation of the steel and concrete is expected to be extremely small. To validate this assumption, the estimate accounts for characterization of 10% of the HSMs; it is likely that some of this characterization will take place well before the last of the fuel is removed from the ISFSI in order to establish a more definitive decommissioning scope.

The decommissioning estimate is based on the premise that some of the DSC support structure within the HSMs will contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an

allowance, 7 of the 52 HSMs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of DSCs required for the final core off-load (i.e., 368 offloaded assemblies, 61 assemblies per DSC) which results in a total of approximately 7 HSMs that contain residual radioactivity.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

NextEra has no record of onsite subsurface material associated with the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

To support an application for License Termination, the estimate assumes that a Final Status Survey will be performed; this will include a 100% survey of the ISFSI pad and the immediate area surrounding the pad, and a significant fraction of the HSMs surfaces.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. NextEra, as licensee, will oversee the site activities; the estimate includes NextEra's labor and overhead costs. The licensee's costs are based upon current, average, fleet salaries and associated expenses, for selected positions.

Low-level radioactive waste disposal costs are based on rates consistent with the most recently developed decommissioning FPL cost estimates (year 2010 dollars), escalated to 2012 dollars. Transport costs are based on current trucking tariffs.

Costs are reported in 2012 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.[5]

The estimate is limited to costs necessary to terminate the ISFSI's NRC license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

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5 "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

6. Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2. The cost has been organized into three phases, including:

- An initial planning phase - empty HSMs are characterized and the specifications and work procedures for the decontamination (DSC support structure removal) developed.
- The remediation phase - residual radioactivity is removed, packaged in certified waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor), NextEra's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it should be conservatively assumed that all expenditures will be incurred in the year 2068, the year following all spent fuel removal.

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (ft)	Width (ft)	Residual Radioactivity
ISFSI Pad	502	122	No

ISFSI Horizontal Storage Module

Item	Value	Notes (all dimensions are nominal)
Outside Height (inches)	222	without vent cover
Outside Length (inches)	248	without shield walls
Outside Width (inches)	116	without shield walls
Quantity (total)	54	Spent Fuel (52) GTCC (2)
Quantity (with residual radioactivity)	7	Equivalent to the number of HSMs used to store last complete core offload)
HSM Internal Steel with Residual Radioactivity (pounds)	34,300	
Low-Level Radioactive Waste (cubic feet)	674	
Low-Level Radioactive Waste (packaged density)	54	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of HSMs used for GTCC storage	2	no residual radioactivity

Table 2
ISFSI Decommissioning Costs[1] and Waste Volumes

	(thousands, 2012 dollars)						Waste Volume	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total	(ft3)	Contractor	Licensee	NRC / NRC Contractor
Decommissioning Contractor										
Planning (characterization, specs and procedures)	-	-	-	-	177	177	-	10,403	-	-
Remediation (activated metal removal)	187	4	7	132	53	384	674	-	-	-
License Termination (radiological surveys)	-	-	-	-	1,031	1,031	-	9,515	-	-
Subtotal	187	4	7	132	1,261	1,591	674	19,918	-	-
Supporting Costs										
NRC and NRC Contractor Fees and Costs	-	-	-	-	171	171	-	-	-	776
Insurance	-	-	-	-	95	95	-	-	-	-
Security (industrial)	-	-	-	-	223	223	-	6,193	-	-
Licensee Oversight Staff	-	-	-	-	327	327	-	-	4,698	-
Subtotal	-	-	-	-	816	816	-	6,193	4,698	776
Total (w/o contingency)	187	4	7	132	2,077	2,407	674	26,112	4,698	776
Total (w/25% contingency)	233	6	9	165	2,596	3,009				

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2068

Enclosure 5

10 CFR 72.30 ISFSI Decommissioning Cost Estimate

1. Background and Introduction

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with the rule, this letter provides a detailed cost estimate for decommissioning the ISFSI at Point Beach in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402.

This letter also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

2. Spent Fuel Management Strategy

The operating licenses for Units 1 and 2 at Point Beach are currently set to expire on October 5, 2030 and March 8, 2033, respectively. Approximately 3,592 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration date.

Under the current spent fuel management plan and assuming that the units operate to the end of their currently licensed lives, approximately 2,272 spent fuel assemblies in 71 modules will have been relocated to the ISFSI during plant operations. Another 296 spent fuel assemblies are expected to be transferred to the ISFSI once operations cease (fuel that cannot be directly transferred from the pools to the DOE within the first 5 years of pool operations).

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1 U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

To facilitate immediate dismantling or safe-storage operations, the spent fuel is assumed to be packaged in dry storage containers (DSCs) for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and fuel pool areas or result in reduced operating expenses should the station be placed into a SAFSTOR dormancy configuration.

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor.[2] For purposes of this analysis, NextEra Energy Point Beach, LLC's (NextEra) current spent fuel management plan for the Point Beach spent fuel [3] is based in general upon: 1) a 2030 start date for DOE initiating transfer of commercial spent fuel to a federal facility (not necessarily a final repository), and 2) expectations for spent fuel receipt by the DOE for the Point Beach fuel. The DOE's generator allocation/receipt schedules are based upon the oldest fuel receiving the highest priority. Assuming a maximum rate of transfer of 3,000 metric tons of uranium/year,[4] the spent fuel is projected to be removed from the Point Beach site in 2074.

3. ISFSI Decommissioning Strategy

At the conclusion of the spent fuel transfer process the ISFSI will be promptly decommissioned (similar to the power reactor DECON alternative) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

For purposes of providing an estimate for a funding plan, financial assurance is expected to be provided on the basis of a prompt ISFSI decommissioning scenario. In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear power plant.

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2 U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) … DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as …"

3 "Decommissioning Cost Study for the Point Beach Nuclear Plant," prepared for NextEra Energy Point Beach, LLC by Energy*Solutions*, Document No. 86A9672, Rev 0, May 2011

4 "Acceptance Priority Ranking & Annual Capacity Report," DOE/RW-0567, July 2004

4. ISFSI Description

The Point Beach ISFSI is currently using a NUHOMS®-32PT dry storage system (there are also an additional 16 VCS-24 casks on site, storing 384 total assemblies). The ISFSI is operated under a general license (10 CFR Part 50).The NUHOMS® system is comprised of a DSC and a horizontal storage module (HSM). The DSCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining HSMs are assumed to have residual radioactivity due to some minor level of neutron-induced activation as a result of the long-term storage of the spent fuel. The cost to dispose of residual radioactivity, and verify that the remaining facility and surrounding environs meet the NRC's radiological limits established for unrestricted use, form the basis of the ISFSI decommissioning estimate.

NextEra's current spent fuel management plan for the Point Beach spent fuel would result in 81 HSMs (nominal 32 assemblies per NUHOMS® DSC) being in position on the storage pad at the site after all spent fuel has been removed from the spent fuel pool. This represents 72% of the total spent fuel projected to be generated during the currently licensed operating period.

In addition to the spent fuel HSMs located on the ISFSI pad after shutdown there are projected to be additional HSMs that are expected to be used for Greater-than-Class-C (GTCC) storage. The HSMs used for the GTCC canisters (estimated quantity of 2) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

5. Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the Point Beach units operating until the end of their current licenses, October 5, 2030 and March 8, 2033, respectively, and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The current size of the ISFSI pads (2 each at 195 feet long by 35 feet wide) is not sufficient to store the projected amount of spent fuel to support decommissioning. For purposes of this estimate a 50 percent expansion of the current ISFSI area is assumed.

It is not expected that the HSMs will have any interior or exterior radioactive surface contamination. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Any neutron activation of the steel and concrete is expected to be extremely small. To validate this assumption, the estimate accounts for characterization of 10% of

the HSMs; it is likely that some of this characterization will take place well before the last of the fuel is removed from the ISFSI in order to establish a more definitive decommissioning scope.

The decommissioning estimate is based on the premise that some of the DSC support structure within the HSMs will contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an allowance, 8 of the 81 HSMs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of DSCs required for the final core off-load (i.e., 121 offloaded assemblies per unit for 242 total, 32 assemblies per DSC) which results in a total of approximately 8 HSMs that contain residual radioactivity.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

NextEra has no record of onsite subsurface material associated with the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

To support an application for License Termination, the estimate assumes that a Final Status Survey will be performed; this will include a 100% survey of the ISFSI pad and the immediate area surrounding the pad, and a significant fraction of the HSMs surfaces.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. NextEra, as licensee, will oversee the site activities; the estimate includes NextEra's labor and overhead costs. The licensee's costs are based upon current, average, fleet salaries and associated expenses, for selected positions.

Low-level radioactive waste transportation and disposal costs are based on rates consistent with the most recently developed decommissioning FPL cost estimates (year 2010 dollars), escalated to 2012 dollars.

Costs are reported in 2012 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.[5]

The estimate is limited to costs necessary to terminate the ISFSI's NRC license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

6. Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2. The cost has been organized into three phases, including:

- An initial planning phase - empty HSMs are characterized and the specifications and work procedures for the decontamination (DSC support structure removal) developed.
- The remediation phase - residual radioactivity is removed, packaged in certified waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor), NextEra's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it should be conservatively assumed that all expenditures will be incurred in the year 2075, the year following all spent fuel removal.

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5 "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (ft)	Width (ft)	Residual Radioactivity
ISFSI Pads (each)	195	35	No

ISFSI Horizontal Storage Module

Item	Value	Notes (all dimensions are nominal)
Outside Height (inches)	222	without vent cover
Outside Length (inches)	248	without shield walls
Outside Width (inches)	116	without shield walls
Quantity (total)	83	Spent Fuel (81) GTCC (2)
Quantity (with residual radioactivity)	8	Equivalent to the number of HSMs used to store last complete core offload
HSM Internal Steel with Residual Radioactivity (pounds)	39,200	
Low-Level Radioactive Waste (cubic feet)	765	
Low-Level Radioactive Waste (packaged density)	54	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of HSMs used for GTCC storage	2	no residual radioactivity

Table 2
ISFSI Decommissioning Costs[1] and Waste Volumes

	(thousands, 2012 dollars)						Waste Volume	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total	(ft3)	Contractor	Licensee	NRC / NRC Contractor
Decommissioning Contractor										
Planning (characterization, specs and procedures)	-	-	-	-	221	221	-	10,602	-	-
Remediation (activated metal removal)	255	5	9	108	53	429	763	-	-	-
License Termination (radiological surveys)	-	-	-	-	1,025	1,025	-	9,594	-	-
Subtotal	255	5	9	108	1,300	1,676	763	20,196	-	-
Supporting Costs										
NRC and NRC Contractor Fees and Costs	-	-	-	-	172	172	-	-	-	776
Insurance	-	-	-	-	171	171	-	-	-	-
Security (industrial)	-	-	-	-	184	184	-	4,955	-	-
Licensee Oversight Staff	-	-	-	-	261	261	-	-	3,759	-
Subtotal	-	-	-	-	788	788	-	4,955	3,759	776
Total (w/o contingency)	255	5	9	108	2,088	2,463	763	25,151	3,759	776
Total (w/25% contingency)	318	6	11	135	2,610	3,079				

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2075

Enclosure 6

CORN BELT POWER COOPERATIVE
Humboldt, Iowa

CERTIFICATE

I, Scott Stecher, do hereby certify that I am the duly appointed, elected, qualified and acting Secretary of Corn Belt Power Cooperative and that the following is a true and correct extract of minutes duly adopted by the Board of Directors of Corn Belt Power Cooperative at its meeting held May 2, 2014.

WHEREAS, it is recommended that the Real Rate of Return on the Decommissioning Trust be revised to change the Real Rate of Return from 3% to 4%;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Corn Belt Power Cooperative that the Real Rate of Return on the Decommissioning Trust be revised from 3% to 4%; and,

BE IT FURTHER RESOLVED, that appropriate officers be authorized and directed to take such action as may be appropriate to carry out the approval of this action.

and that the action taken and/or resolutions adopted as above set out have never been rescinded, altered, amended, modified, or repealed, and are of the date hereof in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and attached the seal of the Cooperative this 23rd day of May, A.D., 2014.

(Seal)

Secretary