

State of Florida



Public Service Commission

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RECORDS AND REPORTING

DATE: AUGUST 24, 2000

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYÓ)

FROM: DIVISION OF ECONOMIC REGULATION (LEE, ^{PSY}SLEMKEWICZ) ^{IS DM RAT}
DIVISION OF SAFETY AND ELECTRIC RELIABILITY (BOHRMANN) ^{Tb}
DIVISION OF LEGAL SERVICES (C. KEATING) ^{WCK}

RE: DOCKET NO. 991931-EG - DETERMINATION OF APPROPRIATE METHOD OF RECOVERY FOR THE LAST CORE OF NUCLEAR FUEL FOR FLORIDA POWER & LIGHT COMPANY AND FLORIDA POWER CORPORATION.

AGENDA: 09/05/00 - REGULAR AGENDA - PROPOSED AGENCY ACTION - INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: S:\PSC\ECR\WP\991931.RCM

CASE BACKGROUND

In Docket No. 990001-EI, Fuel and Purchased Power Cost Recovery Clause and Generating Performance Incentive Factor, Florida Power and Light Company (FPL) presented testimony regarding the issue of recovery of costs associated with the last core of nuclear fuel ("Last Core"). By Order No. PSC-99-2512-FOF-EI, in Docket No. 990001-EI, issued December 22, 1999, the Commission determined that a separate docket should be opened to address this issue on a generic basis for both Florida Power Corporation (FPC) and FPL.

Staff originally filed its recommendation in this docket on June 8, 2000, for consideration at the June 20, 2000, Agenda Conference. On June 15, 2000, FPC requested that the Commission defer consideration of staff's recommendation to provide the companies, staff, and the Office of Public Counsel time to meet and discuss the issue. The parties met on June 21, 2000, and again on

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August 8, 2000 to discuss the subject matter. No agreement was reached on the issue. At this time, staff is prepared to proceed with its recommendation.

The Commission is vested with jurisdiction over this matter through several provisions of Chapter 366, Florida Statutes, including §366.04, §366.05 and §366.06.

DISCUSSION OF ISSUES

ISSUE 1: What is the appropriate recovery mechanism for the cost of the Last Core?

RECOMMENDATION: The existence of the Last Core is the direct result of unit shut down, and there are numerous uncertainties surrounding the timing of unit shut down, actual cost associated with the Last Core, and future regulatory environment. Therefore, staff recommends that the associated costs be considered a base rate future obligation with recovery afforded through an unfunded reserve of nuclear decommissioning. (LEE, BOHRMANN)

STAFF ANALYSIS: Staff believes there are three discussion parts to this issue: defining the Last Core, quantifying the costs of the Last Core, and finally, the appropriate recovery mechanism for the associated costs.

Definition of Last Core

FPC and FPL consider the Last Core as the unburned fuel that will remain in the fuel assemblies at the end of the last operating cycle of each nuclear unit when it ceases operation. Currently for FPL, a typical fuel assembly is amortized over a three cycle period, or about 54 months; for FPC, the three cycle period is 72 months. According to FPC and FPL, two thirds of the fuel assemblies which would normally be moved to new locations within the reactor core at the end of a normal refueling cycle (18 months for FPL and 24 months for FPC) would have to be amortized during the final cycle of unit operation unless an alternative recovery method is introduced. The currently scheduled final cycles of operation for the FPL units are November 2010 to July 2012 for Turkey Point Unit 3 (TP3), November 2012 to April 2013 for Turkey Point Unit 4 (TP4), December 2014 to March 2016 for St. Lucie Unit 1 (SL1), and May 2021 to April 2023 for St. Lucie Unit 2 (SL2). It is staff's understanding that the final cycle for FPC's Crystal River Unit 3 (CR3) will be October 2014 to December 2016. According to the companies, no feasible solution currently exists to use all the nuclear fuel by the time of unit shutdown.

Staff believes that the Last Core is predicated solely on the final shut down of the nuclear unit. For the FPL and FPC nuclear units, final shut down is not expected to occur until 2012 or later. During any given cycle, an amount of unburned fuel exists in the reactor. However, fuel assemblies are continually rotated

and the current existing unburned fuel will be burned in the next generating cycle. It is only at the time when the unit ceases operations that there are no future generating cycles to burn the residual fuel in the reactor.

Cost Estimates

FPL estimates the current cost of the Last Core associated with its units to be approximately \$77 million; FPC estimates the current cost associated with CR3 to be approximately \$18.9 million. Outages, capacity factor, plant life extension, future fuel contracts, the change in mix of generating assets owned by the company as the industry further evolves, market conditions, and technology are all factors cited by FPC that can potentially affect a Last Core cost estimate. According to FPL, the once or twice burned fuel at TP3 cannot practicably be used at TP4 during its last cycle due to internal restrictions on moving fuel from unit to unit. Further, FPL asserts that the Nuclear Regulatory Commission (NRC) would have to approve any fuel transfer from one unit or plant to another. Additionally, the license expiration dates for the operating licenses of the two units are relatively close together (July 19, 2012, for TP3 and April 10, 2013, for TP4). According to FPL, due to the close proximity of these dates, there is no guarantee that the final refueling outage for TP4 would occur after the end of the operating license of TP3. FPC states that the fuel remaining at the time of CR3 shutdown cannot be used at any of the Carolina Power and Light Company units due to different reactor designs.

FPL and FPC's Last Core cost estimates are based on an estimated residual value of the unburned fuel at the end of the recently completed cycle for SL1 and the expected amount remaining at the end of the current cycle for SL2, TP3, TP4, and CR3. FPC's estimates reflect a reduced last cycle from 24 months to 18 months and a reduced fuel size from 72 to 54 assemblies.

Recovery Mechanism

FPL and FPC Positions

FPL considers the Last Core cost to be a result of final shut down of the nuclear reactor which equates to an unrecovered cost remaining at the end of the unit's life. Both FPL and FPC maintain that the cost of the Last Core should be amortized over the remaining life span of each nuclear unit. Additionally, the companies believe that cost recovery of the amortization expense should be provided through the Fuel and Purchased Power Cost

Recovery Clause ("Fuel Clause") because the Last Core represents the cost of fuel.

In the event of an over-recovery due to license renewal, realized salvage, or over-estimated costs, FPC asserts that the over-recovery would be refunded to customers through the Fuel Clause true-up mechanism. In the event of electric generation restructuring prior to the time the cost of the Last Core is incurred, FPC asserts that the funds collected could be used in the consideration of stranded cost/benefits calculations, thereby assuring the customer is made whole.

Staff Analysis

Staff agrees that the costs associated with the Last Core should be recovered from customers receiving the benefits from nuclear generation. However, the issue is how that recovery should be afforded. Staff disagrees with FPL and FPC that recovery through the Fuel Clause is the appropriate mechanism.

Order No. 6357, in Docket No. 74680-CI, issued November 26, 1974, and Order No. 14546, in Docket No. 850001-EI-B, issued July 8, 1985, set forth the generic policies that have guided the Commission regarding the fuel clause. Order No. 6357 refers to the fuel clause as "...intended to compensate for day-to-day fluctuations in the cost of the fuel which cannot be anticipated in the base rates." Because fuel costs represent a substantial portion of a company's operating costs, it was recognized that the volatility of these costs could have a significant impact on a company's earnings. This order further states that the fuel clause was intended to "insure that both the customer and the utility receive the benefits of responsive recognition to changes in the cost of generating electricity." Additionally, this order established the policy of recovery on an as-burned basis. Order No. 14546 lists "invoice price of fuel" and "any revisions to the invoice price" as two of nine specific types of charges which a utility can use for the development of fuel expense in its fuel clause. None of the nine types of charges listed contemplate future period obligations of the utility.

Based on these two orders, staff believes that an investor-owned utility may recover actual fuel and purchased power costs through the fuel clause when these costs are incurred and as the fuel is burned. In the case of the Last Core, the subject fuel will never be burned. For FPC, this fuel will remain in inventory, the cost of which is in the company's rate base. For FPL, which leases its nuclear fuel, the lease payments are based on fuel

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consumed plus an allocation of current financing costs and other administrative costs and fees. Because the Last Core will never be consumed, FPL will incur an additional lease expense for this residual fuel.

The expectation of Last Core cost is predicated solely on the final shut down of the nuclear unit. For the FPL and FPC nuclear units, final shut down is not expected to occur until 2012 or later. It can be argued that an amount of unburned fuel exists in the reactor during any given cycle. However, fuel assemblies are continually rotated and the current existing unburned fuel will be burned in the next generating cycle. It is only at the time when the unit ceases operations that there are no future generating cycles to burn the residual fuel in the reactor. Based on the fact that the Last Core costs have not yet been incurred and the subject fuel will never be burned, staff does not believe the Last Core costs meet the criteria established for recovery through the fuel clause.

FPL and FPC have suggested that past Commission orders which may have precedential value in the instant case. The precedent which provides the most parallels with the instant case is FPL's request to recover an additional \$4.7 million per year from 1998 to 2015 to match the benefits of the additional output from St. John River Power Plant (SJRPP) and the capacity costs associated with SJRPP. The Commission approved this request by Order No. PSC-97-1045-FOF-EI (Order No. 97-1045), in Docket No. 970001-EI, issued September 5, 1997. FPL and the Jacksonville Electric Authority, co-owners of the SJRPP, share the output from this facility. Because SJRPP was financed with tax-exempt financing, FPL is limited to approximately 80,534,332 MWH total from 1987 to 2020. However, SJRPP has operated at a higher than anticipated capacity factor, so FPL is expected to reach its limit in 2015. As a result of the Commission's approval of FPL's request, FPL is collecting an additional \$4.7 million per year in capacity payments from 1998 to 2015 in lieu of the \$80 million in capacity payments required from 2015 to 2020. FPL calculated that the additional SJRPP output through 2015 would produce a net present value savings of approximately \$128 million.

Staff believes the Commission can draw two important distinctions between the SJRPP case and the instant case. In the SJRPP case, the Commission followed two important policies set forth in Order Nos. 6357 and 14546. First, the costs of a given activity should be allocated to the utility's ratepayers when the activity occurs. In the SJRPP case, FPL's ratepayers were currently receiving the benefit of the additional SJRPP capacity.

In the instant case, the Last Core fuel will exist at the time the FPL and FPC nuclear units permanently cease operations. Staff reasonably expects FPL and FPC to operate their respective nuclear units until the end of their NRC operating licenses as indicated by FPL's and FPC's current consideration of license extensions for the Turkey Point and Crystal River units.

Second, the proposed regulatory treatment should create net ratepayer benefits. In the SJRPP case, Order No. 97-1045 suggests that the additional SJRPP capacity will create a net present value savings of approximately \$128 million from 1998 to 2015 for FPL's ratepayers. In the instant case, these Last Core fuel costs represent a future obligation that has existed since each nuclear unit commenced operations.

Besides not satisfying the requirements of the Fuel Clause orders cited above, there are additional reasons for not allowing recovery via a pass-through mechanism. Such a mechanism gives the companies little incentive to mitigate the amount of the Last Core. Additionally, there is no assurance that if, or when, electric generation in Florida is deregulated, the fuel clause will continue. While there is no existing salvage market for this unburned fuel, staff believes it is not reasonable to assume a salvage market will not exist at the time of shutdown. A recovery mechanism that provides assurances of ratepayer benefit is imperative.

It is clear that future adjustments to the cost estimates of the Last Core will be necessary to recognize factors such as outages, capacity factor, plant life extension, future fuel contracts, the change in mix of generating assets owned by the companies as the industry further evolves, market conditions, and technology. In fact, Staff has recently learned of research currently being undertaken regarding possible ways to minimize the Last Core. Possibilities include shorter refueling cycles as the nuclear unit nears shutdown so that fewer fuel assemblies will require replacing, and an enrichment of the fuel specifically designed for the last cycles that would minimize the amount of unburned fuel remaining at shutdown. Developing technologies such as these may serve to reduce the amount of the Last Core and associated costs.

Staff believes that the Last Core is similar to nuclear decommissioning in that both represent estimates of a future obligation that will not be incurred until the nuclear unit ceases operation. FPL and FPC argue that the cost of the Last Core does not meet the intent of nuclear decommissioning because it does not

involve the removal of the plant facility. However, staff notes that FPL has requested in Docket No. 981246-EI that the estimated costs of materials and supplies inventories remaining at the time of unit shut down be considered part of nuclear decommissioning but recovered through an unfunded reserve. Staff believes that end of life inventories and end of life nuclear fuel are very similar in that they are both unique to the nuclear unit and both represent costs remaining at the time of shut down. Additionally, staff notes that site restoration costs could be argued as not meeting the intent of nuclear decommissioning, yet these costs are currently being recovered through FPC's and FPL's nuclear decommissioning trust funds.

The issue of recovery for the Last Core has not been addressed by many regulatory commissions. Staff's research shows only two state commissions which have addressed the issue. Both commission determinations provide for recovery through nuclear decommissioning and disallowance due to when the Last Core costs will be incurred. The Federal Energy Regulatory Commission has provided recovery through rates.

Because the existence of the Last Core is the direct result of unit shut down and because of the uncertainties surrounding the timing of unit shut down, actual costs associated with the Last Core, and future regulatory environment, staff believes the associated costs should be considered a base rate future obligation with recovery afforded through an unfunded reserve of nuclear decommissioning. The cost estimates and resulting annual expense can be addressed in each company's decommissioning study to be filed later this year.

However, if the Commission does allow FPL and FPC to recover the Last Core costs through the fuel clause, staff believes there needs to be assurances of ratepayer protection and Commission jurisdiction over these costs in the event of retail restructuring or over-recovery. Staff recommends that each company be ordered to establish a Deferred Credit Account to accumulate the amortization expenses passed through the fuel clause. Additionally, so that customers receive credit for the time value of money, interest should accrue at the average commercial paper rate. The interest expense should not be passed through the fuel clause. From a base rate perspective, the Deferred Credit should be reported for surveillance purposes in the capital structure.

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ISSUE 2: Should this docket be closed?

RECOMMENDATION: Yes. If no person whose substantial interests are affected by the proposed agency action files a protest within twenty-one days of the issuance of the order, this docket should be closed upon the issuance of a consummating order. (C. KEATING)

STAFF ANALYSIS: At the conclusion of the protest period, if no protest has been filed, this docket should be closed upon the issuance of a consummating order.