

FLORIDA PUBLIC SERVICE COMMISSION
Capital Circle Office Center @ 2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

MEMORANDUM

December 26, 1996

TO: DIRECTOR, DIVISION OF RECORDS & REPORTING (BAYO) *RL*

FROM: DIVISION OF ELECTRIC & GAS (MARLOW, DUDLEY, *LD*, *43* WHEELER, DRAPER) *ED*
 DIVISION OF AUDITING AND FINANCE (STALLCUP, *7* NORIEGA) *954*
 DIVISION OF LEGAL SERVICES (WAGNER) *RVE* For *LW* *DM* *JDS*

RE: DOCKET NO. 970002 - FLORIDA POWER CORPORATION -
 PETITION FOR APPROVAL OF EARLY TERMINATION AMENDMENT TO
 A NEGOTIATED QUALIFYING FACILITY CONTRACT WITH ORLANDO
 COGEN LIMITED, LTD.
 DOCKET NO. 970002-EQ - ENERGY CONSERVATION COST RECOVERY
 CLAUSE

AGENDA: 01/07/97 - REGULAR AGENDA - PROPOSED AGENCY ACTION -
 INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: S:\FPC\EAG\NF\ [REDACTED]

CASE BACKGROUND

On October 1, 1996, Florida Power Corporation (FPC) filed a petition for approval of an early termination amendment (Amendment) to a Negotiated Contract (Contract) with Orlando Cogen Limited, Ltd. (OCL), a qualifying facility (QF). The Contract was entered into on March 13, 1991. The term of the Contract is 30 years, beginning on January 1, 1994, and expiring December 31, 2023. Committed capacity under the Contract is 79.2 megawatts, with capacity payments based on a 1991 pulverized coal-fired avoided unit. The Amendment terminates the last ten years of the Contract. FPC also requests authorization to recover the buyout costs through the Capacity Cost Recovery clause.

The Commission encouraged FPC and other utilities to negotiate contracts with QFs in lieu of accepting standard offer contracts. The Negotiated Contract between FPC and OCL was originally approved for cost recovery in Order No. 24734, issued July 1, 1991, Docket No. 910401-EQ. The Commission later approved an amendment to the

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FPC-RECORDS/REPORTING

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Contract pursuant to a Settlement Agreement between OCL and FPC in Order No. PSC-96-0898-AS-EQ, issued July 12, 1996, Docket No. 960193-EQ.

On March 12, 1996, the Commission issued Order No. PSC-96-0352-POF-EG in Docket No. 960002-EG, which approved FPC's request to defer crediting a 1995 over-recovery of \$17.7 million associated with its residential revenue decoupling experiment. The purpose of the deferral was to allow FPC to conduct a "reverse auction" which would seek QF capacity payment reductions over time in exchange for an up-front payment. The decoupling over-recovery funds possibly could be used to offset these payments if the Commission believed it was beneficial to the residential ratepayers.

On May 2, 1996, FPC issued a Solicitation for Reverse Auction Bids to its operating QFs with firm capacity and energy payments. FPC indicated in the Solicitation that buydown proposals based on higher discount rates and those which provided net benefits to customers sooner rather than later would be preferred. FPC also stated that bids that result in a near term increase in capacity payments may be limited to an aggregate net present value rate impact of \$17.7 million. However, FPC stated, "in the event that highly attractive bids exceed the \$17.7 million limit, FPC may choose to pursue ways with the FPSC to implement such proposals on behalf of its customers."

FPC accepted two of the three bids which were submitted prior to the deadline. However, one bid was subsequently withdrawn when the bidder was unable to obtain lender approval. Negotiations with OCL, the remaining bidder, resulted in the Contract Amendment contained in FPC's petition.

The Amendment provides for a payment to OCL of \$49,405,000 at a rate of \$10.40 per kW-month, in exchange for terminating the last ten years of the Contract. This results in an estimated five year payout period, depending on OCL's performance. FPC requests that cost recovery of the early termination payments be implemented through the Capacity Cost Recovery clause (CCR) beginning in April 1997, as part of the 970002-EG Docket. FPC also requests that the rate impact to residential customers be mitigated by crediting the Energy Conservation Cost Recovery (ECCR) factor with the 1995 revenue decoupling over-recovery balance plus accumulated interest in the 970002-EG Docket.

DISCUSSION OF ISSUES

ISSUE 1: Should the Amendment to the Contract between Florida Power Corporation (FPC) and Orlando Cogen Limited, Ltd. (OCL) be approved for cost recovery?

PRIMARY RECOMMENDATION: Yes. Approval of the Amendment provides an estimated \$33 million net present value savings. The Amendment will also mitigate potential strandable assets, reduce long term liability, and increase FPC's flexibility. (Harlow, Tew)

ALTERNATIVE RECOMMENDATION: No. The buyout is inconsistent with the objectives of the reverse auction bid solicitation and will not produce net savings before the year 2019. Furthermore, the buyout's cost-effectiveness appears to be too sensitive to fluctuations in fuel price projections and inflationary assumptions. (Dudley, Stallcup)

PRIMARY STAFF ANALYSIS: According to FPC's petition, buying out the last ten years of the Contract will "save Florida Power and its customers \$462 million (\$33 million net present value) relative to what they would have paid with the Contract's full 30-year term in effect." This was calculated by comparing the cost of retaining the Contract (Contract Case) to the cost of the buyout payments plus the current projected replacement costs (Replacement Case). In the Contract Case, capacity payments are specified in the Contract and energy payments are based on FPC's coal forecast for the ten-year period beginning in 2014. The Replacement Case includes the buyout payments in years 1997 through 2001 as well as FPC's projected cost of replacing the Contract's capacity and energy. According to FPC's filing, the Contract Case produces costs of \$742.2 million while the estimated Replacement Case costs, including the \$49.4 million in buyout costs, total \$279.9 million. This represents a customer savings of \$462.4 million or \$33 million in current dollars when discounted by FPC's weighted average cost of capital (8.67 percent). FPC's cost-effectiveness analysis is attached to the recommendation as Attachment A. Staff requested that FPC's analysis be updated to reflect the most recent fuel forecast and economic data. This resulted in a change in the net present value (NPV) benefits for the project to \$30.5 million.

Based on staff's analysis of discovery responses provided by FPC in addition to outside data sources, staff believes the assumptions used in FPC's analysis are reasonable. The methodology used in FPC's analysis was also determined to be appropriate.

As with any long-term forecast, there is a risk that the predicted savings will not materialize. However, staff believes that the probability that customers will benefit from the buyout outweighs these risks. Buying out the Contract relieves the obligation to pay \$459 million in known capacity costs and a projected \$283.3 million in fuel costs. As mentioned previously, capacity payments in the Contract are based on a 1991 coal-fired avoided unit. Due to technological improvements and low gas prices, those costs are much higher than today's avoided costs. Also, due to the use of the value of deferral method in calculating the capacity payments of the Contract, the highest capacity payments are in the last years of the Contract. The buyout therefore terminates the most expensive part of the Contract. Today's ratepayers have enjoyed the lower cost years of the Contract. Further, according to staff's sensitivity analysis of the buyout, the NPV remains positive, \$23.3 million, for a worst case scenario which employs the high band of FPC's most recent fuel forecast.

The buyout has several benefits in addition to the expected cost savings. The buyout will mitigate potential strandable costs and increase FPC's flexibility in meeting customer needs in the future. In addition, the reduction of FPC's long-term liability may lead to a decrease in the cost of capital.

Staff believes that the buyout of this QF Contract is a response to the threat of stranded costs given the possibility of retail competition. FPC has indicated to staff that cogeneration contracts are the company's most significant potential strandable costs under retail competition. Further, FPC has indicated that even FPC's nuclear unit, Crystal River No. 3, will be able to compete in an open-access environment. Clearly, we are not yet in an open-access environment. It is therefore unclear whether it is appropriate to address potential strandable costs at this time. Staff also recognizes that the Contract buyout has intergenerational equity issues, given the estimated 22 year payback period. However, staff believes the costs associated with the buyout should be approved for recovery because the buyout appears cost-effective in the long-run and will put control over generation resources back in the hands of FPC. Because the buyout is cost-effective and stockholders do not earn a return on the Contract, the \$49.4 million buyout expense should be recovered from FPC's ratepayers.

ALTERNATIVE STAFF ANALYSIS: Staff has two primary concerns with FPC's petition. Staff's first concern is that it contradicts the objectives of the reverse auction bid solicitation and has negative effects on intergenerational equity due to the lengthy payback period. FPC's petition requests approval to recover \$49.4 million from its current ratepayers over the next five years to incur a net benefit of \$32.9 million. However, this net benefit will not be seen by FPC's ratepayers until the year 2019, or 22 years from today. Secondly, staff is concerned with the level of risk being placed on FPC's ratepayers. The benefits of FPC's proposal appears to be noticeably sensitive to the assumptions used in its cost-effectiveness analysis. Using the fuel price forecasts from FPC's 1996 Ten Year Site Plan reduces savings to the point that FPC's ratepayers may indeed be no better off than under the original contract.

Payback Period

FPC's reverse auction bid solicitation indicated two primary objectives that would be considered when evaluating proposals. They were:

- 1) Bids that provide net benefits (revenue requirement reductions) to customers sooner rather than later will be given a preference, and
- 2) Bids that result in a near term increase of capacity payments may be limited to an aggregate net present value rate impact of \$17.7 million, the amount of the 1995 over-recovery from the revenue decoupling experiment.

As indicated above, the FPC/OCL petition does not meet either of these two objectives. Specifically, FPC's proposed buyout will cost current ratepayers \$49.4 million but will not provide net benefits until 22 years in the future. In fact, the earliest possible benefits could not begin before the year 2014 when the Contract terminates and FPC begins replacing it with replacement power. This results in FPC's current ratepayers funding the buyout in hopes that they will remain customers a minimum of 17 years from now when they might begin to see a benefit. This violates the regulatory goal of intergenerational fairness.

Though this Commission has considered such a long payback period in the past, the paybacks were generally matched with gradual benefits that started closer to the time that costs were incurred. This close matching of cost to benefit helps to reduce

the risk and uncertainty of future benefits actually materializing. One example of near-term benefits associated with a buyout is a coal contract buyout. These types of buyouts discontinue older higher cost fuel contracts and immediately replace them with a lower cost coal supply. Therefore, a benefit is available to offset the added cost. However, the FPC/OCL buyout can not and will not provide any benefit until 17 years from now.

Sensitivity to Assumptions

As explained in the Primary staff analysis, Attachment A shows that terminating the Contract in year 2014 will result in a net benefit of \$32.9 million. Staff performed several analyses in order to determine the buyout's sensitivities to the input assumptions. These analyses varied inputs ranging from the assumed discount rate to projected fuel prices. Overall, the buyout was found to be noticeably sensitive to each of the changes as is more fully described below.

The FPC/OCL buyout assumes that foregone Contract energy and capacity payments could be replaced at a lower cost based on a weighted average of the cost of purchased power and capacity addition (Market Case). As a sensitivity to this assumption, staff asked FPC to develop a replacement capacity and energy forecast based solely on adding a combined-cycle unit (CC Case). This assumption reduces the cost-effectiveness of the FPC/OCL buyout from \$32.9 million to \$31.0 million. However, staff believes that this scenario is more reasonable and was used as the basis for additional analysis.

To measure the impact of changes in projected fuel prices, staff determined the buyout's cost-effectiveness when using the fuel price forecast from FPC's 1996 Ten Year Site Plan filing.¹ Substituting FPC's TYSP Base Case fuel price forecast decreased the buyout's savings to \$20.1 million, a \$12.9 million decrease. FPC's TYSP High Case fuel price forecast further reduced the cost-effectiveness to \$3.3 million, a \$29.7 million decrease. Staff believes that each of these sensitivities are reasonable and demonstrate the impact of short-term changes in fuel price projections.

¹ FPC's 1996 Ten Year Site Plan was found to be suitable for planning purposes at the December 2, 1996 Internal Affairs Conference.

Staff also measured the impact of inflation on the buyout's cost-effectiveness. Inflation was introduced into FPC's methodology by increasing the growth rate in the estimated cost of building the Replacement Case's combined-cycle unit by one percent, and by adding one-third of one percent to FPC's current cost of capital, the assumed discount rate. No changes were made to the fuel forecasts in this analysis to avoid the possibility of double counting inflation when multiple changes in the assumptions were being considered. Staff found that a one percent increase in inflation and a 1/3 of one percent increase in FPC's current cost of capital resulted in a \$7.9 million reduction in the net present value of the buyout. This adjustment raised FPC's assumed growth rate for the combined-cycle's construction cost from 2.6 percent to 3.6 percent. Historically, inflation, as measured by the Gross Domestic Product deflator, has grown an average of 5.0 percent.

Staff also measured the impact of increasing just the assumed discount rate. Substituting FPC's current cost of capital, 8.67 percent, with its average over the last ten years, 9.55 percent, decreased the buyout's cost-effectiveness from \$32.9 million to \$21.9 million, an \$11 million reduction.

Finally, staff analyzed two scenarios in which both fuel prices and inflation were changed. The first scenario combined FPC's High Case TYSP fuel price forecast with a presumed one percent increase in the underlying rate of inflation. When combined, these assumptions result in a negative \$2.8 million net present value. The second scenario combined FPC's High Case TYSP fuel price forecast with FPC's historic cost of capital. This combination reduced the net benefit of the buyout to negative \$3 million, a \$36 million decrease. Staff found these scenarios of higher fuel prices and higher rates of inflation to be consistent with historical events over recent history. Furthermore, staff believes that these represent reasonable scenarios for the future.

The results of each of the analyses mentioned above are listed in the following table:

FPC/OCL Buyout Cost-Effectiveness			
Sensitivity	Savings (\$000)	Decrease (\$000)	PayBack Period
Petition (Market Case/9601 Forecast)	32,954	0.00	22
CC Case/9601 Fuel Price Forecast	31,048	1,906	22
CC Case/Base Case 96 TYSP Fuel Price Forecast	20,075	12,879	23
CC Case/High Case 96 TYSP Fuel Price Forecast	3,258	29,696	26
Petition With 1% Inflation Increase	24,995	7,959	23
Petition with Historic Cost of Capital, 9.55%	21,893	11,061	23
1% Inflation Increase CC Case/High Case 96 TYSP Fuel Price Forecast	(2,763)	35,717	>26
Historic Cost of Capital, 9.55% CC Case/High Case 96 TYSP Fuel Price Forecast	(2,973)	35,927	>26

As shown in the above table, the cost-effectiveness of the buyout is sensitive to both fuel price projections and inflationary impacts. The net savings from the buyout, based on FPC's recent fuel price forecasts, fluctuates as much as \$30 million. Adding the effects of FPC's historic cost of capital or the effects of higher rate of inflation results in negative savings. The FPC/OCL buyout is surrounded with uncertainty due to its lengthy payback period of 22 years. The only certainty surrounding the FPC/OCL buyout is the \$49.4 million buyout cost. Staff does not believe it is appropriate to subject FPC's current customers to this additional \$49.4 million expense in hopes that they might receive a benefit as much as 26 years in the future. Therefore, staff recommends that the Commission deny FPC's petition.

ISSUE 2: If Staff's primary recommendation on Issue 1 is approved, how should Florida Power Corporation (FPC) recover expenses associated with the Settlement Agreement to buy out the Orlando Cogen Limited, Ltd. (OCL) Contract?

PRIMARY RECOMMENDATION: If the primary staff recommendation to Issue 1 is approved, all expenses associated with the buyout should be recovered from the ratepayers through two adjustment clauses. Specifically, 38 percent of the buyout costs should be recovered through the Fuel and Purchased Power Cost Recovery Clause, and 62 percent should be recovered through the Capacity Cost Recovery Clause. This would approximate the cost allocation which would have occurred had the Contract remained in place. FPC indicated that the cost allocation methodology suggested by staff was acceptable. (Draper, Harlow, Wheeler)

ALTERNATIVE RECOMMENDATION: If the primary recommendation to Issue 1 is approved, staff recommends that \$46,642,000 of the \$49.4 million total buyout cost be allowed for recovery through the Capacity and Fuel Clauses and the remaining \$2,763,000 be recovered through current base rate earnings. The \$46,642,000 being recovered through the Capacity and Fuel Clauses should be allocated as recommended in the primary recommendation. (Stallcup)

PRIMARY STAFF ANALYSIS: As discussed in Issue 1, primary recommendation, staff recommends that the buyout is reasonable and prudent. Therefore, the buyout costs should be approved for cost recovery from the ratepayers. FPC requested in the petition that cost recovery of the buyout costs be implemented through the Capacity Cost Recovery Clause (capacity clause). This method, however, would result in inequities in cost allocation.

Capacity costs are allocated to customer classes based on their contribution to system peak demand. Since residential (RS) customers contribute relatively more to peak demand than commercial/industrial customers, recovery of all the costs through the Capacity Clause would unfairly burden the RS class. Fuel costs, on the other hand, are allocated to customer classes based on their relative energy (kWh) consumption. Allocating recovery only through the Fuel Clause would therefore result in commercial/industrial customers paying more of the cost relative to RS customers.

According to FPC's analysis of the Contract Case for the last ten years of the Contract, 62 percent of the total Contract payments to OCL would have been capacity payments recoverable

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through the Capacity Clause. The remaining 38 percent of the payments to OCL would have been energy payments recoverable through the Fuel Clause. Staff is recommending the buyout costs be recovered through the two clauses based on these percentages, in order to approximate the manner in which the Contract costs would have been recovered absent the buyout. FPC indicated that the cost allocation methodology suggested by staff was acceptable.

ALTERNATIVE STAFF ANALYSIS: FPC's request for recovery of the costs associated with the buyout of the OCL Contract is aimed at a desirable goal. Contracts like this one expose ratepayers to potentially higher energy costs in the future. They also reduce the company's financial flexibility by requiring them to carry potentially non-competitive sources of generation as long-term liabilities on their books. The fundamental question is whether the price FPC is asking ratepayers to pay to solve this problem is too high.

In the Primary Recommendation to Issue 1, staff considered the methodology and assumptions underpinning FPC's proposal, and although recognizing that there is a chance that the benefits to ratepayers may not materialize, concluded that FPC's proposal should be approved. Staff considered the same methodology and assumptions and concluded that the risk to ratepayers was too excessive and recommended that the proposal be denied. In this Alternative Recommendation, staff is proposing that by allowing a small portion of the Contract buyout costs to pass through current base rate earnings, the bulk of the Contract buyout costs can be recovered dollar for dollar through the recovery clauses as requested by the company, while reducing the long-term risk to ratepayers that gave rise to the concerns expressed in the Alternative Recommendation in Issue 1.

Staff believes that there are several factors that support the recovery of the buyout costs through the recovery clauses and current base rate earnings.

First, as discussed in the Alternative Recommendation in Issue 1, the net present value of the Contract buyout as presented by the company is sensitive to changes in the input assumptions. Using the scenario in which fuel prices conform to the high band forecast contained in FPC's 1996 Ten Year Site Plan, and using a historically modest rate of inflation 1 percent greater than assumed by FPC, the net present value of the buyout becomes negative in the amount (\$2,763,000). Staff believes that this scenario is entirely plausible considering the historical range

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over which these input assumptions have varied and the length of time involved before the payback begins. Staff sees this scenario as a reasonable upper bound to the risk to which ratepayers should be exposed.

Second, FPC's current earned return on equity is 12.49%, well within its allowed range of 11.0 to 13.0 percent. With \$2.5 million representing 10 basis points on return on equity, there is room to allow a portion of the total buyout costs to flow through current base rate earnings and still keep the company safely within their range. The effect of recovering \$2.8 million over five years through current base rate earnings is to reduce FPC's achieved ROE by 2.2 basis points each year. Furthermore, staff believes that it is equitable to share the cost of the buyout between ratepayers and the company since both stand to benefit from it.

Third, recovering the costs between the recovery clauses and current base rate earnings does not change the terms of the Contract between FPC and OCL, only the way the costs are recovered. Approval of this form of recovery would not require renegotiation of the Contract.

Given these factors, staff believes that it is appropriate to approve recovery of the buyout costs through both the recovery clauses and through current base rate earnings. Given the plausibility of the scenario described above, staff recommends that \$2,763,000 of the total Contract buyout costs be recovered through base rates and the remaining \$46,642,000 be recovered through the Capacity and Fuel Recovery clauses. Both should be recovered over the five year period beginning in 1997 as requested in FPC's petition.

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ISSUE 3: How should the 1995 revenue decoupling over-recovery balance be credited to customers?

RECOMMENDATION: The Energy Conservation Cost Recovery (ECCR) factor should be credited with the 1995 revenue decoupling balance and accumulated interest to residential customers only with a one year amortization period as a part of the 970002-EG Docket. FPC has indicated that the one year amortization period is acceptable. (Dudley, Harlow, Stallcup)

STAFF ANALYSIS: Although the Commission approved FPC's request to defer crediting the 1995 revenue decoupling balance to allow FPC to conduct the reverse auction for QF buyouts, staff believes the refund of the decoupling balance is a separate issue and is unrelated to the merits of the Contract buyout.

In Order No. PSC-95-0097-FOF-EI approving FPC's proposal for revenue decoupling for residential customers, the Commission stated that, "revenue impacts from the decoupling experiment shall be reflected in the calculation of the ECCR factor." On March 12, 1996, the Commission issued Order No. PSC-96-0352-FOF-EG in Docket No. 960002-EG identifying \$17,746,531 plus interest as the appropriate amount of over-recovery for the Revenue Decoupling true-up balance for 1995.

FPC requests that the impact of the contract restructuring costs on residential customers be diffused by crediting the ECCR factor (for residential customers only) with the previously deferred 1995 revenue decoupling over-recovery balance and accumulated interest. FPC suggested that the decoupling over-recovery be amortized over a period of one to three years, whichever period best minimizes fluctuations in the customers' overall bills.

On November 19, 1996, FPC filed a Notice of Estimated True-Up Under-Recovery (Docket No. 960001-EI) which addressed the expected under-recovery of fuel costs due to an outage at the Crystal River 3 nuclear unit. In this filing FPC states that in order to diffuse the rate impact of the fuel under-recovery on residential customers, "Florida Power will request a one-year amortization period of the [1995] decoupling over-recovery in its upcoming ECCR filing." Staff agrees that the amortization period should be one year to mitigate the rate impacts for residential customers of the contract buyout along with any potential fuel cost under-recovery.

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Legal staff received a letter from the Legal Environmental Assistance Foundation (LEAF) which stated, "LEAF has concerns about the connection between decoupling refunds to the residential customers and FPC's proposed QF contract buydown." The letter did not specify what these concerns are. However, as stated above, staff views the refund of the 1995 decoupling over-recovery balance and accumulated interest as a separate issue from the merits of the Contract buyout.

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ISSUE 4: Should this docket be closed?

RECOMMENDATION: Yes. If no person whose substantial interests are affected by the Commission's proposed agency action files a protest within twenty-one days of the issuance of this order, this docket should be closed.

STAFF ANALYSIS: If no person whose substantial interests are affected, files a request for a Section 120.57, Florida Statutes, hearing within twenty-one days of the issuance of this order, no further action will be required and this docket should be closed.

Exhibit D

**Savings to PPC Customers
Due to OCL Contract Buyout
2014**

Year	<u>Contract Case</u>			<u>Replacement Case</u>				<u>Customer Savings</u>
	<u>Capacity</u>	<u>Energy</u>	<u>Total</u>	<u>Capacity</u>	<u>Energy</u>	<u>Buyout Cost</u>	<u>Total</u>	
	(1)	(2)	(1)+(2)	(4)	(5)	(6)	(4)+(5)+(6)	(3)-(7)
1997	0	0	0	0	0	9,881	9,881	(9,881)
1998	0	0	0	0	0	9,881	9,881	(9,881)
1999	0	0	0	0	0	9,881	9,881	(9,881)
2000	0	0	0	0	0	9,881	9,881	(9,881)
2001	0	0	0	0	0	9,881	9,881	(9,881)
2002	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0
2014	38,322	24,311	62,634	9,011	18,889	0	25,970	34,664
2015	38,177	25,118	63,295	9,343	18,721	0	25,984	37,331
2016	40,118	28,825	68,941	9,515	17,882	0	28,897	39,544
2017	42,171	28,819	70,991	9,788	17,441	0	27,229	41,762
2018	44,312	27,718	72,031	10,882	17,789	0	27,861	44,169
2019	46,578	28,844	75,423	10,341	18,182	0	28,483	46,730
2020	48,983	28,887	77,870	10,881	17,887	0	28,488	50,152
2021	51,483	30,882	82,365	10,883	18,387	0	29,120	52,935
2022	54,078	31,834	85,704	11,189	18,882	0	29,751	55,854
2023	56,838	32,788	89,626	11,478	18,887	0	30,383	58,158
Total 2014-2023 =			9742,948				9278,886	\$462,384
Net present value at 1/1/87 =			9118,821				886,887	\$32,954