

# **Calvert Cliffs Nuclear Power Plant Unit 3**

## **Combined License Application**

### **Part 9: Proprietary and Sensitive Unclassified Non- Safeguards Information**

Revision 2  
March 2008

## **PROPRIETARY AND SENSITIVE UNCLASSIFIED NON-SAFEGUARDS INFORMATION**

This part of the CCNPP Unit 3 COLA is withheld from public disclosure in accordance with 10 CFR 2.390 because it contains Commercial Proprietary and Sensitive Unclassified Non-Safeguards Information (SUNSI).

proforma income statement continues to remain financially attractive, thus supporting a strong business case for the project.

As reflected in Table 1.0-3, the total project cost estimated for {CCNPP Unit 3 is [] (in 2007 dollars)}. The project is expected to be financed with approximately {80% debt and 20% equity, assuming the debt is completely covered by federal loan guarantees. The planned debt/equity ratio for the financing of CCNPP Unit 3 is consistent with the provisions for federal loan guarantees included in the Energy Policy Act of 2005 (PLN, 2005).} It is expected that the sources of this financing will be {institutional banks and/or large insurance companies. As more detailed information is developed regarding cost and financing of the facility, it will be submitted to the NRC, as appropriate.}

### 1.3 DECOMMISSIONING FUNDING ASSURANCE

In accordance with the Commission's regulations in 10 CFR 50.33 (CFR, 2007a) and the guidance provided in NUREG-1577, "Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance," (NRC, 1999) decommissioning financial assurance information is provided in this section. The purpose of this section is to provide reasonable assurance that {Constellation Generation Group} and UniStar Nuclear Operating Services (the co-applicants that are intended to be license holders for {CCNPP Unit 3}) have a viable plan to ensure that funds will be available to decommission {CCNPP Unit 3}, when required. As such, this subsection and the associated Appendices constitute the decommissioning report required by 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning," paragraph (b) (CFR, 2007j).

This subsection provides (1) an estimate of total decommissioning costs and the funding methods to cover those costs, as provided in 10 CFR 50.75 (CFR, 2007j) and (2) the required financial assurance certification for decommissioning in an amount no less than that calculated in accordance with 10 CFR 50.75 (CFR, 2007j).

#### 1.3.1 DECOMMISSIONING COST ESTIMATE

COL applicants are required to include, as part of their application, a report containing a certification that financial assurance for decommissioning will be provided in an amount that may be more, but not less, than the amount stated in the table in 10 CFR 50.75(c)(1) (CFR, 2007j).

{For CCNPP Unit 3, the minimum certification amount has been computed, using the formula provided in 10 CFR 50.75(c)(1) and (2) (CFR, 2007j) and appropriate escalation factors for energy, labor, and waste burial costs. The escalation factors for labor and energy were taken from regional data of the US Department of Labor, Bureau of Labor Statistics and the escalation factor for waste burial was taken from NUREG-1307, "Report of Waste Burial Charges" (NRC, 2007).} The certification amount does not include the costs of dismantling or demolishing non-radiological systems and structures. The funding assurance covers only the removal of radiologically contaminated systems and structures, and reduction of residual radioactivity to a level that permits (1) release of the property for unrestricted use and termination of the license, or (2) release of the property under restricted conditions and termination of the license. In addition, the costs of managing and storing spent fuel on site until transfer to the U.S. Department of Energy for permanent disposal are not included. The minimum certification amounts were calculated for both disposition of low level radioactive waste (LLRW) by waste vendors and disposal of LLRW by direct burial options. {The minimum certification amounts calculated in 2006 dollars are \$378 million for the disposition of LLRW by waste vendors option

**Table 1.0-1—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement<sup>a</sup>(Non-Proprietary Version)}**

(\$Millions)	2015 <sup>b</sup>	2016	2017	2018	2019
Revenue					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>c</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>d</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>e</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. Base Case assumes leverage of approximately 80% Debt /20% Equity with 5.5% cost of borrowing and loan guarantees.
- b. The Projected Income Statement for 2015 reflects a partial year.
- c. Includes DOE disposal fees.
- d. Decommissioning expense net of decommissioning fund earnings.
- e. Income Taxes net of Production Tax Credits and Generation Qualified Deductions.

**Table 1.0-2—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Statement of Operating Cash Flows(Non-Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue					
Market	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Total Revenues	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Operating Expenses					
Nuclear fuel <sup>b</sup>	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
O&M, Non-Outage	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
O&M, refueling outage	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Property taxes	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Net Decommissioning Expenses	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Total Operating Expenses	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Capital project expenditures <sup>c</sup>	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]
Operating Cash flows Before Income Taxes & financing costs	[[ ]	[[ ]	[[ ]	[[ ]	[[ ]

- a. The Projected Statement of Operating Cash Flows for 2015 reflects a partial year.
- b. Includes DOE disposal fees and nuclear fuel capital.
- c. Includes recurring/maintenance capital expenditure and outage capital.}

**Table 1.0-3—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Project Cost (Non-Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>
<b>Uses:</b>	
Plant Cost	[ ]
Transmission	[ ]
Initial Fuel Load	[ ]
Interest During Construction (capitalized)	[ ]
Other Financing Charges <sup>b</sup>	[ ]
Total Capital Project Cost	[ ]
<b>Sources:</b>	
Debt	[ ]
Equity	[ ]
Total Capital Project Cost	[ ]

- a. Cumulative projected Debt, Equity, and financing balances as of Commercial Operation Date (COD).
- b. Includes cumulative loan origination fee, federal loan guarantee fee, commitment fee and debt service reserve. }

**Table 1.0-4—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement Sensitivity Cost of Borrowing Increased 200 Basis Points (Non-Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>b</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>c</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>d</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. The Projected Income Statement for 2015 reflects a partial year.
- b. Includes DOE disposal fees.
- c. Decommissioning expense net of decommissioning fund earnings.
- d. Income Taxes net of Production Tax Credits and Generation Qualified Deductions.}

**Table 1.0-5— {Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement Sensitivity, Leverage of 64% Debt /36% Equity(Non-Proprietary Version)**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>b</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>c</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>d</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. The Projected Income Statement for 2015 reflects a partial year.
- b. Includes DOE disposal fees.
- c. Decommissioning expense net of decommissioning fund earnings.
- d. Income Taxes net of Production Tax Credits and Generation Qualified Deductions.}



**Table 1.0-6—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement Sensitivity, 10% Reduction in Projected Market Prices(Non-Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue <sup>b</sup>					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>c</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>d</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>e</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. The Projected Statement for 2015 reflects a partial year.
- b. This sensitivity analysis reflects results from market prices 10% lower than projected, which include both a reduction in revenue and corresponding reduction in income tax expense.
- c. Includes DOE disposal fees.
- d. Decommissioning expense net of decommissioning fund earnings.
- e. Income Taxes net of Production Tax credits and Generation Qualified Deductions. }

**Table 1.0-7—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement Sensitivity, 10% Reduction in Capacity Factor(Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue <sup>b</sup>					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>c</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>d</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>e</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. The Projected Income Statement for 2015 reflects a partial year.
- b. This sensitivity analysis reflects results from sales assuming a 10% reduction in capacity factor, corresponding to reductions in nuclear fuel amortization and income tax expense.
- c. Includes DOE disposal fees.
- d. Decommissioning expense net of decommissioning fund earnings.
- e. Income Taxes net of Production Tax Credits and Generation Qualified Deductions. }

**Table 1.0-8—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement Sensitivity, No Receipt of Production Tax Credits(Non-Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>b</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>c</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>d</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. The Projected Income Statement for 2015 reflects a partial year.
- b. Includes DOE disposal fees.
- c. Decommissioning expense net of decommissioning fund earnings.
- d. This sensitivity assumes the project is not eligible for Production Tax Credits. Income Taxes are net of Generation Qualified Deductions.}

**Table 1.0-9—{Calvert Cliffs Nuclear Power Plant Unit 3 Projected Income Statement Sensitivity, 10% Higher Capital Cost (Non-Proprietary Version)}**

(\$Millions)	2015 <sup>a</sup>	2016	2017	2018	2019
Revenue					
Market	[]	[]	[]	[]	[]
Total Revenues	[]	[]	[]	[]	[]
Operating Expenses					
Nuclear Fuel <sup>b</sup>	[]	[]	[]	[]	[]
O&M, Non-Outage	[]	[]	[]	[]	[]
O&M, refueling outage	[]	[]	[]	[]	[]
Property taxes	[]	[]	[]	[]	[]
Net Decommissioning Expenses <sup>c</sup>	[]	[]	[]	[]	[]
Depreciation	[]	[]	[]	[]	[]
Total Operating Expenses	[]	[]	[]	[]	[]
Operating Income	[]	[]	[]	[]	[]
Other (income)/expense					
Interest expense	[]	[]	[]	[]	[]
Total other (income)/expense	[]	[]	[]	[]	[]
Pretax Income	[]	[]	[]	[]	[]
Income Taxes <sup>d</sup>	[]	[]	[]	[]	[]
Net Income After-Tax	[]	[]	[]	[]	[]

- a. The Projected Income Statement for 2015 reflects a partial year.
- b. Includes DOE disposal fees.
- c. Decommissioning expense net of decommissioning fund earnings.
- d. Income Taxes net of Production Tax Credits and Generation Qualified Deductions.

**Table 1.0-10—{Calvert Cliffs Nuclear Power Plant Unit 3, 6-Month Non-Regulatory Delay(Non-Proprietary Version)}**

A specific sensitivity was not calculated for the 6-month non-regulatory delay scenario as it is believed that the 10% Higher Capital Cost Sensitivity (Table 1.0-9) conservatively bounds the 6-month non-regulatory delay scenario.

A 6-month delay is a scenario whereby the start of operations would be postponed for 6 months due to non-regulatory reasons.

A 6-month non-regulatory delay would increase the Interest During Construction (IDC) and would incur additional operating costs (primarily labor). Operating costs incurred prior to Commercial Operation Date (COD) are capitalized and financed along with other construction costs.

The incremental capitalized interest and capitalized Operating and Maintenance (O&M) costs are estimated as follows.

(\$Millions)	
Total Base Case Capital Cost (from Table 1.0-3)	[ ]
Additional Interest on debt (from Table 1.0-3) ([ ] debt*5.5% interest rate* ½ year)	[ ]
Additional Capitalized Operating Costs (fixed O&M Cost, includes labor, overhead, property taxes and insurance)	[ ]
Total 6-Month Non-Regulatory Delay Capital Cost	[ ]

The total capital cost would increase from [ ] million to approximately [ ] million (an increase of 3%), which is significantly less than the [ ] ([ ]\*110%) projected for the 10% Higher Capital Cost Sensitivity.

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wages for the region and the 50 mi (80 km) radius, it is concluded that the potential increase in state income taxes represent a small economic benefit.

Additional sales taxes also would be generated by the power plant and the in-migrating residents. Constellation Generation Group and UniStar Nuclear Operating Services would directly purchase materials, equipment, and outside services, which would generate additional state sales taxes. Also, in-migrating residents would generate additional sales tax revenues from their daily purchases. The amount of increased sales tax revenues generated by the in-migrating residents would depend upon their retail purchasing patterns, but would only represent a small benefit to this revenue stream for the region and the 50 mi (80 km) radius.

Overall, although all tax revenues generated by the CCNPP Unit 3 and the related workforce would be substantial in absolute dollars, as described above, they would be relatively small compared to the overall tax base in the region and the state of Maryland. Thus, it is concluded that the overall beneficial impacts to state tax revenues would be SMALL.}

#### **4.4.2.6.2 Two-County Region of Influence**

{In 2006, Constellation Energy paid about \$15.8 million in Calvert County property taxes (including \$10.3 million in personal property and \$5.5 million in operating real property taxes) for Units 1 and 2, and in 2007 it paid about \$16.2 million in property taxes (including \$10.6 million in personal property and \$5.6 million in operating real property taxes),

The total project capital cost estimated for CCNPP Unit 3 is [ ] billion (in 2007 dollars). In 2007, the CCNPP Unit 3 site is estimated to generate [ ] million in total property taxes in its current, substantially undeveloped state. Investments in planning, engineering, and an assumed limited work authorization from 2008 through 2010 would result in UniStar paying increased county total property taxes, from about [ ] million in 2008, to [ ] million in 2009, to [ ] million in 2010. Even more substantial increases in total property tax payments would occur in subsequent years once major construction activities commence, including [ ] million in 2011, [ ] million in 2012, [ ] million in 2013, [ ] million in 2014, and [ ] million in 2015. The maximum of [ ] million would represent a significant [ ] percent increase in Calvert County's \$78.8 million in annual property (real and personal) tax revenues for fiscal year 2005, and a [ ] percent increase in total county revenues of \$174.1 million (see Section 2.5.2).

These increased property tax revenues would either provide additional revenues for existing public facility and service needs or for new needs generated by the power plant and associated workforce. The increased revenues could also help to maintain or reduce future taxes paid by existing non-project related businesses and residents, to the extent that project-related payments provide tax revenues that exceed the public facility and service needs created by CCNPP Unit 3. However, the payment of those taxes often lags behind the actual impacts to public facilities and services, or the time needed to plan for and provide the additional facilities or services. Thus, it is concluded that these increased power plant property tax revenues would be a LARGE economic benefit to Calvert County.

Additional county income taxes would be generated by the in-migrating residents, although the amount cannot be estimated because of the variability of investment income, retirement contributions, tax deductions taken, applicable tax brackets, and other factors. It is estimated that Calvert County would experience a \$66.5 million increase in annual wages from the direct workforce. St. Mary's County would experience an estimated annual increase of \$22.5 million from the direct workforce. Relative to the existing total wages for the ROI, it is concluded that the potential increase in county income taxes represent a small economic benefit to the jurisdictions.

migrating into Calvert County would generate over \$34.4 million in income and the 137 indirect households in St. Mary's County would generate \$11.6 million in household income. This additional income would result in additional expenditures and economic activity in the ROI. However, it would represent a small percentage of overall total income in the ROI. It is concluded that the impacts to employment and income would be SMALL, and would not require mitigation.}

#### **5.8.2.4 Tax Revenue Generation**

##### **5.8.2.4.1 50 Mile (80 km) Comparative Geographic Area**

{Additional state income taxes would be generated by the in-migrating residents, although the amount cannot be estimated because of the variability of investment income, retirement contributions, tax deductions taken, applicable tax brackets, and other factors. It is estimated that the 50 mi (80 km) radius and the state would experience a \$25.4 million increase in annual wages from the direct workforce and \$46.0 million in indirect workforce wages, for a total of \$71.4 million. Relative to the existing total wages for the state and 50 mi (80 km) radius, it is concluded that the potential increase in state income taxes represent a SMALL economic benefit.

Additional sales taxes also would be generated by the power plant and the in-migrating residents. It is estimated that UniStar would spend about \$9 million annually (in 2005 dollars) on materials, equipment, and outside services (excluding costs for planned outages), which would generate additional state sales and income taxes. The amount of increased sales tax revenues generated by the in-migrating residents would depend upon their retail purchasing patterns, but would only represent a SMALL benefit to this revenue stream for the state and the 50 mi (80 km) radius.

Overall, although all tax revenues generated by the CCNPP Unit 3 and the related workforce would be substantial in absolute dollars, as described above, they would be relatively small compared to the overall tax base in 50 mi (80 km) area and the State of Maryland. Thus, it is concluded that the overall beneficial impacts to state tax revenues would be SMALL.}

##### **5.8.2.4.2 {Two-County} Region of Influence**

{The facility qualifies for a 50% reduction in assessed personal property value once operation begins in 2016, reducing the personal property assessed value from [ ] billion (excluding financing costs) to [ ] billion. This would result in a drop in total property tax payments for Unit 3 to [ ] million in 2016, which then would slowly decline in following years as a result of taking allowances for depreciation. This would represent a [ ] increase in Calvert County's \$78.8 million in annual property (real and personal) tax revenues for fiscal year 2005, and a [ ] increase in total county revenues of \$174.1 million (see Section 2.5.2). These increased property tax revenues would either provide additional revenues for existing public facility and service needs or for new needs generated by the power plant and associated workforce. The increased revenues could also help to maintain or reduce future taxes paid by existing non-project related businesses and residents, to the extent that project-related payments provide tax revenues that exceed the public facility and service needs created by CCNPP Unit 3. It is concluded that these increased power plant property tax revenues would be a LARGE economic benefit to Calvert County.

Additional county income taxes would be generated by the in-migrating residents, although the amount cannot be estimated because of the variability of investment income, retirement contributions, tax deductions taken, applicable tax brackets, and other factors. It is estimated that Calvert County would experience a \$19.0 million increase in annual wages from the direct

concentration. Minority and low-income residents of these census block groups might benefit from employment at CCNPP Unit 3, to the extent that they are currently unemployed or underemployed, and to the extent that they have the skills required to fill the operational workforce positions. This beneficial impact is likely to be SMALL, would not be disproportionate compared to the general population, and would not require mitigation.

It is estimated that Constellation Generation Group and UniStar Nuclear Operating Services would spend \$28 million annually in salaries (an average of \$77,135/year/worker for direct labor, excluding benefits). The CCNPP Unit 3 estimated average annual salary is only somewhat less than the \$84,388 median income for an entire household in Calvert County in 2005, but noticeably larger than \$62,939 median household income in St. Mary's County. Again, minority and low-income residents might benefit from employment at CCNPP Unit 3, to the extent that they can switch from lower paying to higher paying jobs. Given the small number of higher paying jobs created, the beneficial impacts for low-income and minority populations would be SMALL, would not be disproportionate compared to the general population, and would not require mitigation.}

#### **5.8.3.2.2 Housing**

{As described in Section 5.8.2, there are far more vacant housing units available in the ROI than would be needed to house the direct and indirect operational workforces for CCNPP Unit 3. Also, because significantly more units are available than would be needed, the in-migrating workforces alone should not result in an increase in housing prices or rental rates.

In addition, scheduling planned outages for CCNPP Unit 3 at times other than when they would occur for CCNPP Units 1 and 2 should minimize the impacts of the availability and cost for hotel/motel rooms and other short-term accommodations. Thus, CCNPP Unit 3 should not affect the availability or cost of housing for low-income and minority populations. Because the operational workforce would not require significant amounts of the vacant houses or hotel/motel rooms and, thus, would not affect housing or rental prices, the power plant would have a SMALL impact on housing, would not be disproportionate compared to the general population, and would not require mitigation.}

#### **5.8.3.2.3 Tax Revenues**

{Finally, UniStar would pay an estimated [ ] million annually in property taxes (all figures are in 2005 dollars) starting in 2015 when power plant operation would begin. These revenues would slowly decline in the following years as a result of taking allowances for depreciation. These new property taxes from CCNPP Unit 3 would represent a [ ] increase in Calvert County's \$78.8 million in annual property (real and personal) tax revenues for fiscal year 2005, and a [ ] increase in total county revenues of \$174.1 million.

UniStar also would spend about \$9 million annually on materials, equipment, and outside services (excluding costs for planned outages) which would generate additional sales taxes for the county and the state.

The CCNPP Unit 3 operational workforce would generate increased income tax, sales tax, and property tax revenues where they live and where they spend their incomes. Low-income and minority populations might benefit somewhat from these increased tax revenues, either because they might help to avoid some future tax increases or they might fund improvements to or the creation of new public facilities or services. However, the benefits of these additional tax revenues, facilities, or services would be SMALL, would not be disproportionate compared to the general population, and would not require mitigation.}



created by the construction and operation of the new facility. Many of these jobs would be in the service sector and could be filled by unemployed local residents, lessening demands on social service agencies in addition to strengthening the economy. It is anticipated that the new jobs would be maintained throughout the life of the plant.

Construction and operation of the new nuclear facility at {CCNPP} would generate an economic multiplier effect in the area. The economic multiplier effect means that for every dollar spent an additional \$0.69 of indirect economic revenue would be generated within the region of influence (BEA, 2007). The economic multiplier effect is one way of measuring direct and secondary effects. Direct effects reflect expenditures for goods, services, and labor, while secondary effects include subsequent spending in the community. The economic multiplier effect due to the increased spending by the direct and indirect labor force created as a result of the construction and operation of the new nuclear reactor unit would increase economic activity in the region, most noticeably in {Calvert County}.

Given concerns in the State of Maryland about climate change and carbon emissions, {CCNPP Unit 3} serves an important environmental benefit need by reducing carbon emissions in the State. Upon operation, CCNPP Unit 3 would displace significant amounts of carbon compared to a coal-fired generating plant. The costs of climate change, which have been quantified, will have a significant impact on the global and national economies.

#### **10.4.2 COSTS**

This section summarizes estimated costs for construction and operation of {CCNPP Unit 3}. The information provided in this section was prepared in accordance with the guidance provided in NUREG-1555 (NRC, 1999), ESRP 10.4.2). The discussion below provides sufficient economic information to assess and predict costs and benefits.

Table 10.4-1 summarizes the benefits and costs of the proposed action. Section 10.5 summarizes the potential cumulative adverse environmental impacts at the proposed project site.

##### **10.4.2.1 Monetary - Construction**

The phrase commonly used to describe the monetary cost of constructing a nuclear plant is "overnight capital cost." The capital costs are those incurred during construction, when the actual outlays for equipment and construction and engineering are expended, in other words, the cost resulting if one were to pay for 100% of the plant "overnight". Overnight costs are:

- expressed as a constant dollar amount versus actual nominal dollars,
- expressed in \$/kW, and
- for the nuclear industry, the overnight capital cost does not include inflation, financing, extraordinary site costs, licensing, transmission or the initial fuel load.

The overnight capital cost for CCNPP Unit 3 is estimated to be {[            ]}. This is the unlevelized capital cost for Unit 3. The levelized capital cost for the "nth" U.S. EPR will be lower than that for CCNPP Unit 3 as a result of cost savings such as document reuse, supply chain volume savings, labor and construction sequence learning curve, and reduced spare parts inventory, that can be realized by constructing multiple EPRs. Since CCNPP Unit 3 will have a net electrical output of approximately 1,600 megawatts electric (MWe), the cost of construction is estimated to be {[            ]}.

Information withheld in accordance with 10 CFR 2.390, “Public inspections, exemptions, requests for withholding,” paragraph (d)(1).

**Table 10.4-1 Benefit and Costs of the Proposed Project Summarized**  
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Cost Category	{CCNPP Site	Brownfield Site	Nine Mile Point Site	Ginna Site}
<b>INTERNAL COSTS</b>				
Construction Cost	[ ] (It is anticipated that CCNPP Unit 3 will have a net electrical output of approximately 1,600 MWe. Using the value of [ ] per kW results in a CCNPP Unit 3 construction cost of approximately [ ]).	[ ] (It is anticipated that the installed reactor will be similar to CCNPP Unit 3 (net electrical output of approximately 1,600 MWe. Using the value of [ ] per kW results in a construction cost of approximately [ ]).	[ ] (It is anticipated that the installed reactor will be similar to CCNPP Unit 3 (net electrical output of approximately 1,600 MWe. Using the value of [ ] per kW results in a construction cost of approximately [ ]).	[ ] (It is anticipated that the installed reactor will be similar to the CCNPP Unit 3 (net electrical output of approximately 1,600 MWe. Using the value of [ ] per kW results in a construction cost of approximately [ ]).
Operating Cost	{ \$0.031 to \$0.046 per kilowatt-hour	\$0.031 to \$0.046 per kilowatt-hour	\$0.031 to \$0.046 per kilowatt-hour	\$0.031 to \$0.046 per kilowatt-hour
Land	{ The CCNPP site is 2,057 acres (832 hectares). Co-located on the CCNPP site with CCNPP Units 1 and 2. Impact on land use is minimal compared to a new site. SMALL	Existing power plant site is 157 acres (63 hectares) Co-located with existing power plant facility. Impact on land use is minimal compared to new site. Potential wetland issues. MODERATE	900 acres (364 hectares) of available space is available at the existing NMP site for the new facility. Co-located with existing nuclear facility. Impact on land use is minimal compared to new site. SMALL	425 acres (172 hectares) of available space is available at the existing Ginna site for the new facility. Co-located with existing nuclear facility. Impact on land use is minimal compared to new site. SMALL}
Labor	{ Add 363 direct new jobs, 660 indirect new jobs to the benefits. SMALL	It is assumed that similar size workforce to that which is anticipated for the proposed CCNPP facility. SMALL	It is assumed that similar size work force to that which is anticipated for the proposed CCNPP facility. SMALL	It is assumed that similar size workforce to that which is anticipated for the proposed CCNPP facility. SMALL}

**Figure 3.8-2—{Schematic Site Plan of Seismic Category I Buried Utilities at the NI  
(Electrical Duct Banks)}**

**Figure 3.8-4—{Schematic Site Plan of Seismic Category I Buried Utilities at the NI  
(Underground Piping)}**

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Figure 9B-10—{CCNPP Unit 3 Fire Barrier Location, SWGR/SBO Buildings Plan View at Elevation (-)13'-0"}  


This fire area is frequently occupied during normal plant operations. The egress route from this area in the event of a fire is via grade level exits provided from each room.

#### **9B.3.1.2 Fire Area FA-UMA-02 (Table 9B-2, Column 2)**

Fire area FA-UMA-02 is the Stairwell located in the southeast (plant southeast) corner of the Turbine Building that serves those elevations from (-)23 ft to 115 ft.

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-02 from affecting adjacent fire areas.

This fire area is one of four egress routes/exits from the Turbine Building. If this exit becomes obstructed due to fire conditions, three other exit stairwells are available.

#### **9B.3.1.3 Fire Area FA-UMA-03 (Table 9B-2, Column 3)**

[ ]

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-03 from affecting adjacent fire areas.

This fire area is one of four egress routes/exits from the Turbine Building. If this exit becomes obstructed due to fire conditions, three other exit stairwells are available.

#### **9B.3.1.4 Fire Area FA-UMA-04 (Table 9B-2, Column 4)**

Fire area FA-UMA-04 is the Stairwell located in the northeast (plant northeast) corner of the Turbine Building that serves those elevations from (-)23 ft to 115 ft.

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-04 from affecting adjacent fire areas.

This fire area is one of four egress routes/exits from the Turbine Building. If this exit becomes obstructed due to fire conditions, three other exit stairwells are available.

#### **9B.3.1.5 Fire Area FA-UMA-05 (Table 9B-2, Column 5)**

[ ]

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-05 from affecting adjacent fire areas.

This fire area is one of four egress routes/exits from the Turbine Building. If this exit becomes obstructed due to fire conditions, three other exit stairwells are available.

#### **9B.3.1.6 Fire Area FA-UMA-06 (Table 9B-2, Column 6)**

Fire area FA-UMA-06 is the Elevator shaft located in the southeast (plant southeast) corner of the Turbine Building from elevation (-)23 ft to 65 ft.

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-06 from affecting adjacent fire areas.

This fire area is not used as an egress component and occupants are protected from the effects of fire by rated construction and by elevator control and recall features.

**9B.3.1.7 Fire Area FA-UMA-07 (Table 9B-2, Column 7)**

Fire area FA-UMA-07 is the Oil Discharge Tank Room located at grade elevation within FZ-UMA-04.

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-07 from affecting adjacent fire areas.

This fire area is occasionally occupied during normal plant operations. The egress route from this area in the event of a fire is to through one of multiple doors provided from the room with continuing egress to the exterior of the structure.

**9B.3.1.8 Fire Area FA-UMA-08 (Table 9B-2, Column 8)**

Fire area FA-UMA-08 is the the Lube Oil Room located 38 ft above grade elevation. It includes the Main Lube Oil Tank, Filter and Cooler and is located within FZ-UMA-06.

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UMA-08 from affecting adjacent fire areas.

This fire area is occasionally occupied during normal plant operations. The egress route from this area in the event of a fire is to through one of multiple doors provided from the room with continuing egress to the exterior of the structure.

**9B.3.2 SWITCHGEAR BUILDING****9B.3.2.1 Fire Area FA-UBA-01 (Table 9B-2, Column 9)**

Fire area FA-UBA-01 is the Switchgear Building floor located 13 ft below grade elevation. Fire area FA-UBA-01 is comprised of the following rooms:

Room Number	Room Name
UBA01-001	Cable Spreading Room 1
UBA01-002	Cable Spreading Room 2
UBA01-003	SBO Diesel Tank Room 1
UBA01-004	SBO Cable Spreading Room 1
UBA01-005	SBO Cable Spreading Room 2
UBA01-006	SBO Diesel Tank Room 2
UBA01-007	SBO Aux. Equipment Room 1
UBA01-008	SBO Aux. Equipment Room 2
UBA01-009	Corridor

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UBA-01 from affecting adjacent fire areas.

This fire area is occasionally occupied during normal plant operations. [ ]

**9B.3.2.2 Fire Area FA-UBA-02 (Table 9B-2, Column 10)**

Fire area FA-UBA-02 is the Switchgear Building floor located 0 ft (grade) elevation. Fire area FA-UBA-02 is comprised of the following rooms:

Room Number	Room Name
UBA02-001	MV Distribution Board Room 1
UBA02-002	480V LV Main Distribution Room 1
UBA02-003	480V LV Main Distribution Room 2
UBA02-004	MV Distribution Board Room 2
UBA02-005	Engine Room 1
UBA02-006	SBO Control Room 1
UBA02-007	SBO Control Room 2
UBA02-008	Engine Room 2
UBA02-009	Auxiliary Boiler Equipment Room
UBA02-010	Corridor

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UBA-02 from affecting adjacent fire areas.

This fire area is occasionally occupied during normal plant operations. [ ]

### 9B.3.2.3 Fire Area FA-UBA-03 (Table 9B-2, Column 11)

Fire area FA-UBA-03 is the Switchgear Building floor located 13 ft above grade elevation. Fire area FA-UBA-03 is comprised of the following rooms:

Room Number	Room Name
UBA03-001	Cable Distribution Division Room 1
UBA03-002	Cable Distribution Division Room 2
UBA03-003	Corridor

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UBA-03 from affecting adjacent fire areas.

This fire area is occasionally occupied during normal plant operations. The egress route from this area in the event of a fire is via Turbine Building exit stairwells FA-UMA-03 and FA-UMA-05.

### 9B.3.2.4 Fire Area FA-UBA-04 (Table 9B-2, Column 12)

Fire area FA-UBA-04 is the Switchgear Building floor located 24.5 ft above grade elevation. Fire area FA-UBA-04 is comprised of the following rooms:

Room Number	Room Name
UBA04-001	Battery Room 1
UBA04-002	Battery Charger Room 1
UBA04-003	I&C Control & Protection Panel Room 1
UBA04-004	I&C Control & Protection Panel Room 2
UBA04-005	Battery Charger Room 2
UBA04-006	Battery Room 2
UBA04-007	Air Handling Room 1
UBA04-008	Air Handling Room 2
UBA04-009	Corridor

The adequacy of the fire protection features provided is sufficient to prevent a fire originating within fire area FA-UBA-04 from affecting adjacent fire areas.

This fire area is occasionally occupied during normal plant operations. [ ]



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Figure 9B-11 — {CCNPP Unit 3 Fire Barrier Location, SWGR/SBO/AUX BLR Buildings Plan View at Elevation 0'-0"} }

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Figure 9B-12—{CCNPP Unit 3 Fire Barrier Location, SWGR/SBO/AUX BLR Buildings Plan View at Elevation 13'-0"}

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Figure 9B-13—{CCNPP Unit 3 Fire Barrier Location, SWGR/SBO/AUX BLR Buildings Plan View at Elevation 24'-6"}

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Figure 9B-14—{CCNPP Unit 3 Fire Barrier Location, SWGR/SBO/AUX BLR Buildings, Plan View Section A-A}

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Figure 9B-18—{CCNPP Unit 3 Fire Barrier Location, Central Gas Supply Building Plan View at Elevation 85'0"} }