BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

IN THE MATTER OF:

APPLICATION OF UNISTAR NUCLEAR ENERGY, LLC	)	
AND UNISTAR NUCLEAR OPERATING SERVICES,	)	
LLC FOR A CERTIFICATE OF PUBLIC CONVENIENCE	)	**Case No. _____**
AND NECESSITY TO CONSTRUCT A NUCLEAR POWER	)	
PLANT AT CALVERT CLIFFS IN CALVERT COUNTY,	)	
MARYLAND	)	

APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

Pursuant to Sections 7-207 and 7-208[1] of the Maryland Public Utility Companies Article, and Title 20, Subtitle 79 of the Code of Maryland Regulations ("COMAR"), UniStar Nuclear Energy, LLC ("UNE") and UniStar Nuclear Operating Services, LLC ("UNO") (the "Co-Applicants") hereby submit this application (the "Application") to the Maryland Public Service Commission (the "Commission") for a Certificate of Public Convenience and Necessity ("CPCN") to construct a nominal 1,710 MW nuclear power generation station and its associated overhead transmission lines ("Calvert Cliffs Unit 3") at the Calvert Cliffs Nuclear Power Plant

[1] A person, who is not an electric company as defined in § 1-101(h) of the Maryland Public Utility Companies Article, is authorized to apply for a certificate of public convenience and necessity for a generating station and associated overhead transmission lines. Md. Code Ann., Pub. Util. Cos. § 7-208 (2006).

("CCNPP") site in Calvert County, Maryland.[2] The purpose of Calvert Cliffs Unit 3 is to generate electricity for sale at wholesale.

Section I of this Application provides an overview of the project and the rationale for the Commission to grant the certificate. Section II of this Application provides the specific information required under §§ 7-207 and 7-208 of the Maryland Public Utility Companies Article and COMAR Title 20, Subtitle 79. This Application is supported by the attached *Technical Report in Support of Application of UniStar Nuclear Energy, LLC and UniStar Nuclear Operating Services, LLC for Certificate of Public Convenience and Necessity to Construct Unit 3 at Calvert Cliffs Nuclear Power Plant and Associated Transmission Lines* ("*Technical Report*") which is incorporated by reference.

I. PROJECT OVERVIEW

The Co-Applicants

UNE and UNO, two members of the UniStar family of businesses, are the Co-Applicants for the CPCN to construct Unit 3 at Calvert Cliffs.

UNE

UNE is a joint venture between Constellation Energy Group, Inc.'s ("CEG")[3] nuclear subsidiary, Constellation Energy Nuclear Group, LLC ("CENG")[4] and Electricité de France

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2 The gross electrical output of the proposed Calvert Cliffs Unit 3 will be approximately 1,710 MW; however, some output is used for plant operation and facilities. As a result, the expected net output of electricity for sale, subject to seasonal variation, will be approximately 1,600 MW.

3 CEG, through its various subsidiaries, is a major generator of electricity, with a diversified fleet of more than 78 power plants (fossil, renewable, and nuclear) strategically located throughout the United States and a generating capacity of approximately 8,700 MW. The output of CEG's plants is sold to many of the nation's leading distribution utilities, energy companies, and cooperatives.

("EDF"). CEG is a Fortune 200 competitive energy company based in Baltimore, Maryland, and is one of the nation's largest energy companies, with total assets of over $21 billion. EDF is the largest nuclear plant owner and most experienced nuclear operator in the world.[5] EDF is also the largest utility in France, where nuclear power provides approximately 80% of the electricity.

As its contribution to the joint venture, EDF is investing up to $625 million in UNE. CENG is contributing its UniStar nuclear-related companies and interests and the land on which Calvert Cliffs Unit 3 will be built to UNE.[6] UNE will be the vehicle through which CEG, CENG, and EDF will pursue new nuclear power generation opportunities in North America. Under the UNE governance structure and in accordance with the requirements of the U.S. Nuclear Regulatory Commission ("NRC"), CENG will have ultimate control over all safety-related issues, regulatory decisions, and certain key corporate control and budgetary measures.[7] Michael J. Wallace, the President of CENG, is also the Chairman of UNE's Board of Directors.

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4 The principal offices of CENG are located in Baltimore, Maryland. CENG, formed in 1999 under the name Constellation Generation Group, LLC, is a Maryland limited liability company and a wholly-owned subsidiary of CEG. Constellation Generation Group, LLC changed its name to CENG on October 1, 2007. CENG's wholly-owned subsidiaries currently own and operate five nuclear power plants: CCNPP Units 1 and 2; the R.E. Ginna plant near Rochester, New York; and two units at Nine Mile Point in Oswego, New York. These units safely produce approximately 3,930 MW of base-load capacity while maintaining a high average capacity (availability) factor. These nuclear power plants have consistently achieved favorable ratings for safety and performance from regulatory bodies, including the NRC.

5 EDF's participation in UNE is through its subsidiary, EDF Development Inc., a Delaware corporation.

6 Under the terms of the UNE joint venture agreement, CENG has agreed to require its subsidiary, Calvert Cliffs Nuclear Power Plant, Inc., the owner of Units 1 and 2, to transfer the land on which Unit 3 will be built to UNE or to a special purpose entity that will be formed for the purpose of owning Unit 3.

7 *See* 42 U.S.C. § 2133(d); 64 Fed. Reg. 52355 (Sept. 28, 1999).

UNE has announced its intention to bring together experienced nuclear owners, operators and investors to develop, own, and operate a fleet of standardized advanced nuclear power plants, representing some of the first nuclear power plants licensed and built in the United States in thirty years. If successful, these efforts will fulfill a recognized need to increase base-load electric generation capacity that is environmentally friendly and carbon emissions-free.

Although UNE is currently the proposed owner of Calvert Cliffs Unit 3, at a future date, UNE will likely hold its ownership in a newly formed entity established for the sole purpose of owning the unit. When that special purpose entity is formed, the Co-Applicants will amend this application and inform the Commission of this change in ownership. This new ownership entity may have passive financial investors. Nevertheless, the majority ownership and control of Calvert Cliffs Unit 3 will remain in UNE.

UNO

UNO is a Delaware limited liability company with its principal place of business in Baltimore, Maryland. UNO is currently a wholly-owned subsidiary of UNE, formed for the purpose of being a licensee and operator of nuclear power plants. UNO will be the operator of Calvert Cliffs Unit 3. It is anticipated that in the future UNO will cease to be wholly owned by UNE and will instead have a consortium of active investors who will be experienced United States owners and operators of nuclear facilities who choose to do business (license, develop, construct, operate, and maintain nuclear power plants) under this UniStar business model. Nevertheless, UNE will continue to be the majority owner and will maintain operational control of UNO.

The U.S. EPR Reactor: Design and Operational Features

The Co-Applicants are seeking to build and operate Calvert Cliffs Unit 3 utilizing the U.S. Evolutionary Power Reactor ("U.S. EPR") manufactured by AREVA NP Inc. ("AREVA").[8] The new unit will accompany the existing two reactors that have been in operation at the CCNPP site since the mid-1970s. The U.S. EPR is a Generation III[9] nuclear power plant of the pressurized water reactor ("PWR") type. Based on mature and proven light water reactor technology originally developed in the United States and advanced globally, the U.S. EPR design builds on this 40 years of experience with construction and operation of nuclear reactors and integrates the results of decades of research and development.

The U.S. EPR design enables streamlined construction, incorporates redundant safety systems, allows for higher efficiency, and facilitates flexible operation. For example, the U.S. EPR can use diverse fuel types (including low-enriched uranium and mixed oxide fuel), accommodate 100% recycled fuel, and employs a flexible fuel cycle of 12 to 24 months. In addition, the U.S. EPR can operate at levels between 20% and 100% of its power load to meet

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8 CENG has entered into a joint marketing venture, called UniStar Nuclear, LLC ("UNM"), with AREVA, a preeminent nuclear reactor manufacturer/vendor. AREVA has designed and developed the U.S. EPR, which is the modern nuclear reactor design proposed for this new nuclear fleet. UNE plans to develop the new U.S. EPR plants as a standardized fleet (i.e., built and operated as identically to one another as possible) to maximize safety, efficiency, and operational expertise. Calvert Cliffs Unit 3 will be the first of these new standardized reactors and, as a consequence, if constructed it will be the "reference" plant for all subsequent U.S. EPR plants. To construct the plants, UNE has enlisted the services of Bechtel Power Company – a highly experienced architect/engineer/construction firm.

9 Generation I reactors were early prototype reactors, built in the 1950s and 1960s and only continue to be operated in the United Kingdom. Most active nuclear reactors, including the entire U.S. fleet, are considered to be Generation II reactors. Generation II reactors typically use enriched uranium fuel and are mostly cooled and moderated by water. Generation III are advanced reactors, the first few of which are in operation in Japan. The key difference between Generation II and Generation III reactors is the enhanced safety features incorporated in the new designs.

changing demands on the electricity grid. Although the NRC licenses nuclear power plants for 40 years, the U.S. EPR is designed to operate for 60 years.[10]

The U.S. EPR incorporates design innovations that increase the performance, efficiency, and operability and, consequently, the economic competitiveness of the unit. The U.S. EPR is expected to:

- Generate net output of approximately 1,600 MW (the highest unit power available and nearly equaling the generation capacity of Calvert Cliffs Units 1 and 2 combined);
- Reduce generation costs at least 10% lower than other operating nuclear plants;
- Reduce uranium consumption by 17% per produced MWh and permit recycling of spent fuel assemblies (a process that is allowed in Europe, but not yet in the United States); and
- Reach an average 95% availability (capacity) factor over the increased 60-year design lifetime, obtained through longer irradiation cycles, shorter refueling outages, and in-operation maintenance.

The U.S. EPR also integrates major safety innovations that ensure protection of human health and the environment against the consequences of internal and external hazards. Engineered safety features for the U.S. EPR are designed to mitigate the consequences of a design basis accident.[11] The U.S. EPR increases safety by using:

- Four separate, independent safety systems -- each of which is capable of performing the safety function on its own;
- A leak-tight containment structure around the reactor;
- A passive emergency post-accident debris collection area; and
- A robust two-layer outer shell made of reinforced concrete to protect against external hazards.

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[10] Although the facility is designed for a 60-year life, the term of the initial license sought from the NRC is statutorily limited to 40 years. *See* 42 U.S.C. § 2133(c) (2005).

[11] A "design basis accident" is a postulated accident that, pursuant to NRC regulation, a nuclear facility must be designed and built to withstand without loss to the system, structures, and components that are necessary to assure public health and safety.

In sum, the U.S. EPR is designed to achieve safety, reliability and efficiency standards superior to those of any of its predecessors.[12]

Overview of a PWR Nuclear Power Plant

In a nuclear power plant, the reactor generates heat by splitting the atoms of certain elements (i.e., the nuclear fission process), which heat is then used to produce steam.[13] The steam drives a turbine generator, which produces electricity. In a PWR like the U.S. EPR, ordinary freshwater acts as a coolant as it circulates through the reactor core. This water also slows down (or moderates) the neutrons released in the nuclear fission process. Slowing down the neutrons is necessary so that they can cause more fission and continue the chain reaction. This nuclear heat source is the counterpart of the coal-, gas-, or oil-fired boilers in use at fossil-fueled plants.

The PWR design incorporates three entirely separate cooling circuits: the primary (reactor water) circuit, the secondary (turbine steam generating) circuit, and the circulating water (condenser) circuit. In a PWR design, water in the primary cooling circuit flows through the reactor core under high pressure so it does not turn into steam which would slow down the

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12 A more detailed description of Calvert Cliffs Unit 3's design and operational features, including the reactor, turbine and cooling system, is included in the accompanying *Technical Report* at § 2.2 and § 2.3. The *Technical Report* also includes a compact disc containing two videos describing the U.S. EPR design features.

13 To make electricity, a nuclear power plant relies as its fuel on mildly enriched uranium dioxide formed into pellets. The pellets have the same diameter as a dime and are over an inch in length. These pellets are arranged in long rods bundled together. The bundles are vertically arranged and submerged in water inside the pressure vessel. Control rods made of material that absorbs neutrons, such as cadmium or boron, are inserted into the pressure vessel using a mechanism that can raise or lower the control rods. When the operator wants the reactor core to produce more heat, the rods are lifted out of the reactor bundle. To create less heat, the rods are lowered into the uranium bundle. The rods also can be dropped completely into the uranium bundle to shut the reactor down for safety or to change the fuel.

fission reaction. Pressure is maintained in the primary cooling circuit by a steam pressurizer. Water in the primary cooling circuit is pumped through the reactor core in four parallel closed loops.

The secondary circuit creates steam to drive the turbine. Only heat is transferred from the primary circuit to the secondary circuit through the steam generator; no water is exchanged in this process. The advantage of this design is that the primary circuit water, which is exposed to nuclear material, never comes in contact with the secondary circuit water. Water in the secondary circuit is converted to steam to drive the turbine. After passing through the turbine, the steam is condensed and returned to be reheated. *See* Figure 1.

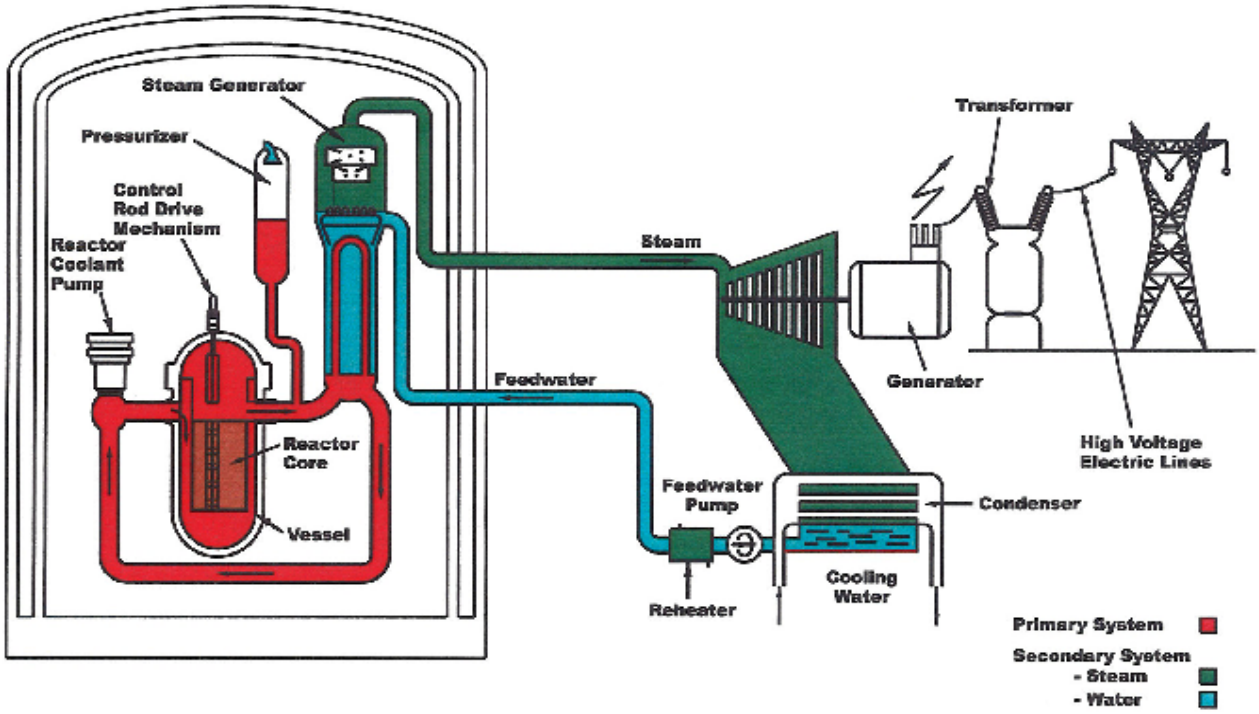

Figure 1. Schematic Diagram of Pressurized Water Reactor.

The cooling water needed to condense the steam exiting the turbine is supplied by the third cooling circuit, the circulating water system ("CWS").[14] The Co-Applicants have concluded that the best choice to provide cooling water for the CWS is a single, plume-abated[15] advanced mechanical draft cooling tower that is approximately 164 feet high.[16] This cooling tower uses fans to force or draw air through the cooling tower to facilitate heat transfer to the ambient air and to enhance evaporative cooling. The CWS pumps draw brackish water from the Chesapeake Bay through an intake facility to supply the cooling tower make-up water basin. Water from the cooling tower is then pumped through thousands of metal tubes that comprise the plant's steam condenser, thereby cooling and condensing the steam exiting the turbine. The condensation process raises the temperature of the brackish water in the CWS. The heated water is returned to the cooling tower, which releases excess heat into the atmosphere. The water that is not lost from the cooling tower through evaporation is re-circulated through the condenser with make-up water from the Chesapeake Bay.

The Location

The Co-Applicants propose to build Calvert Cliffs Unit 3 on the southern portion of the 2,070-acre CCNPP campus. By placing Calvert Cliffs Unit 3 next to the existing Calvert Cliffs Units 1 and 2, the Co-Applicants are expanding upon a location that:

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14 The planned CWS uses far less water from the Chesapeake Bay than the once-through cooling system employed by Calvert Cliffs Units 1 and 2 because it will not use the Bay waters to dissipate heat.

15 Calvert Cliffs Unit 3 cooling tower is a hybrid design and will not create any visible plume. A complete description of the cooling tower and cooling water system is set forth in § 6.2 of the *Technical Report*.

16 Under the restrictions imposed pursuant to § 316 of the Federal Water Pollution Control Act, closed-cycle cooling is the only practical alternative for Unit 3 that will meet both the § 316(b) water intake requirements for new facilities, as well as the § 316(a) thermal discharge requirements at this multi-facility site. *See* 33 U.S.C. § 1326(a) and (b) (2005).

- Has already accommodated two nuclear reactors safely and reliably for more than 30 years;
- Has sufficient transmission capacity to support the addition of the new unit (with only minor upgrades);
- Possesses all of the required resources to operate a new reactor safely; and
- Has the support of the local community and local government.

The southern portion of the Calvert Cliffs site, consisting of approximately 1,108 acres (the "South Parcel"), will be transferred from the existing owner, Calvert Cliffs Nuclear Power Plant, Inc. ("CCNPP, Inc.") to UNE or to the special purpose entity discussed above. The northern portion of the Calvert Cliffs site, containing approximately 963 acres (the "North Parcel"), will be retained by CCNPP, Inc. Construction of Calvert Cliffs Unit 3 will require the use of approximately 420 acres of the 2,070-acre Calvert Cliffs campus, of which approximately 281 acres will be permanently used by Calvert Cliffs Unit 3 and its supporting facilities. Most of the construction and permanent use areas will be located on the South Parcel, but some will be located on the North Parcel pursuant to easements granted by CCNPP, Inc. to UNE. Calvert Cliffs Unit 3 will be separated from Units 1 and 2 by a distance of approximately 2,500 feet. The Calvert Cliffs Unit 3 reactor and turbine buildings will be located farther inland than Units 1 and 2 and approximately 1,000 feet from the shoreline. Due to its distance from and location relative to Units 1 and 2, Calvert Cliffs Unit 3 will have a separate secured area and a separate construction access road that will be located to avoid, as much as possible, the disruption of the operations of Units 1 and 2 during construction of Unit 3.

PJM Interconnection, LLC ("PJM") has prepared the required technical studies regarding the feasibility and impact of Calvert Cliffs Unit 3 on the transmission system and has determined that, with minor upgrades and the acceptance of certain operational limitations that will only apply under rare circumstances, the existing transmission corridor will be sufficient to serve the

output of the facility. Interconnection of Calvert Cliffs Unit 3 will be completed in accordance with the requirements of the applicable PJM tariffs, as approved by the Federal Energy Regulatory Commission ("FERC").

Benefits of Constructing Calvert Cliffs Unit 3

Enhances stability and reliability of the electric system. There is a demonstrated future need for additional base-load electric capacity in the region that includes the State of Maryland.[17] Conservation, energy efficiency, and demand response are all important ways to reduce the region's growing electricity demand, but may be insufficient to off-set the need for new base-load generation. A mixture of short-term and long-term generation, transmission, and demand reduction solutions and a diverse mix of generating fuel sources may be utilized to meet this need. The development of nuclear power can be one part of an overall strategy to address the region's energy needs by creating a diverse energy portfolio that will protect both the stability and reliability of the bulk power system and support a robust and competitive wholesale market for electric power.

Incorporates state-of-the-art Generation III technology. AREVA has invested $200 million to develop this Generation III, state-of-the-art U.S. EPR. The advanced design should allow the proposed unit to operate more efficiently than any currently operating nuclear power plant. Thus, the new unit should be able to produce more energy with the same amount of fuel than any other nuclear plant in operation today.

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[17] The Maryland General Assembly (as part of its electric restructuring efforts in 1999) removed the requirement for a CPCN applicant to establish that the proposed generating station is needed to meet existing and future demand. Nevertheless, reliability load forecasts prepared by the Commission, the Power Plant Resource Program of the Maryland Department of Natural Resources, and PJM indicate that the reserve margin between available supply and demand is tightening.

Uses safest and most secure technology available. The Co-Applicants recognize the important safety and security concerns attendant with constructing and operating a nuclear power plant and will be required to meet stringent NRC safety standards. CENG has established a strong industrial safety culture – focused on prevention – that actively engages employees and contractors. Calvert Cliffs Unit 3 will build on that culture and reputation for safety. The U.S. EPR features four redundant, independent safety systems. The plant also features a double-walled containment structure that houses the nuclear reactor. These features represent the safest, most secure, advanced nuclear power plant technology available in the world today.

Uses the campus of an existing nuclear facility. No location in Maryland is believed to be superior to Calvert Cliffs for the location of this facility. The site is well-known and has been well-studied with respect to land, water, plant and animal life. Recent studies included in the accompanying *Technical Report* confirm the appropriateness of using this site for the development and operation of this new reactor.

Nuclear power is "carbon-free." Greenhouse gas emissions are a growing concern in our State and around the world. Nuclear energy is the largest source of clean air, carbon-free electricity, producing no greenhouse gas or carbon-based air pollutants from the generating unit. All other base-load generating resources have a greater environmental impact than nuclear power.

Requires no new offsite transmission lines. Because Calvert Cliffs Unit 3 will be built on the campus of the existing CCNPP, it will be interconnected to the grid using the existing power transmission system. With minor upgrades, the existing transmission system has sufficient capacity to support the output of the new unit. Any costs associated with modifications or upgrades to existing transmission facilities needed to accommodate the

additional capacity will be the responsibility of and paid for by the Co-Applicants in accordance with PJM's tariff requirements.

Employs an environmentally-friendly cooling technique that minimizes the effect on the Chesapeake Bay. To remove the excess heat created during steam production, many electric generating facilities use a once-through cooling technique that requires a large intake from the source water, potentially affecting marine life adversely, and returning water at an elevated temperature. In contrast, the cooling system incorporated into the design of Calvert Cliffs Unit 3 uses a low-rise mechanical draft cooling tower to dissipate heat. As a result, Calvert Cliffs Unit 3 will use approximately 1/10 the volume of Bay water used by Units 1 and 2 combined. Calvert Cliffs Unit 3 will also employ a state-of-the-art fish return technology at the cooling system's intake structure to reduce any impingement or entrainment of the Bay's marine life.

Results in significant benefits to Calvert County and the State of Maryland. The proposed Calvert Cliffs Unit 3 will generate direct tax revenue annually to Calvert County, as well as to the State of Maryland.[18] The Calvert County Board of County Commissioners estimates that the new unit will provide the County with approximately $20 million in additional annual tax revenue, which can be used to fund education, school construction, roads, law enforcement, and fire and rescue services. Currently, 67% of the approximately 800 employees working at Calvert Cliffs Units 1 and 2 reside in Calvert County. Calvert Cliffs Unit 3 will provide temporary construction jobs for approximately 4,000 workers, depending on the stage of construction. Moreover, the plant will create approximately 360 well-paying, full-time jobs during operation. While the project will contribute financially to the local economy, it will not

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[18] CCNPP, Inc. paid $16.2 million in taxes to Calvert County for the 2006-2007 tax year.

cause substantial population growth and, therefore, is expected to have little impact on County services and infrastructure.

Has significant local government support. The Calvert County Board of Commissioners has expressed its unanimous support for the proposed Calvert Cliffs Unit 3:

> Many of the decisions we make are difficult; many take months, even years, but the decision to support the potential expansion remains simple and uncomplicated. Nuclear energy is clean and reliable. Calvert Cliffs is a good and reasonable corporate citizen in our community. Given our history with the plant, we are comfortable with its presence, appreciate the financial contribution to our economy, and, most importantly, trust the regulatory process and oversight and Constellation's commitment to safety and environmental stewardship.

Letter to L. Burkhart, Sr. Proj. Mgr. NRC, from Calvert Co. Bd. of Co. Comm'rs (August 14, 2007) (on file with Co-Applicants).

On August 8, 2006, the Calvert County Board of County Commissioners voted unanimously to provide real and personal property tax incentives for the proposed project, which will become effective when Unit 3 is placed in service. These incentives will last for 15 years and at the conclusion of this period, the plant will pay the full amount of taxes imposed by the County without abatement.

Regulatory Approval Process

Calvert Cliffs Unit 3 will require several approvals, including that of the Commission and the NRC, before construction – and ultimately operation – of the facility can begin.[19] The approval process at the NRC is expected to take three to four years and will proceed

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[19] Additionally, the Co-Applicants will present the project to the Chesapeake Bay Critical Area Commission because the project entails performing some construction activities within the 1,000-foot setback from the Bay. The Co-Applicants will seek a permit from the United States Army Corps of Engineers to impact certain wetlands. The permits and approvals necessary to the construction and operation of Unit 3 are set forth in Table 1.3-1, Federal, State and Local Authorizations, of the attached *Technical Report*.

simultaneously with this CPCN proceeding. At the NRC, the Co-Applicants are seeking a combined license ("COL") for construction and operation of Calvert Cliffs Unit 3. Similarly, the vendor for the chosen technology, AREVA, is seeking a "standard design certification" from the NRC for the U.S. EPR.[20]

A COL, when issued, is authorization from the NRC to construct and, with conditions, operate a nuclear power plant at a specific site and in accordance with applicable laws and regulations. The NRC must be satisfied that the plant will be properly constructed and will operate safely. The potential nuclear safety and radiological impacts associated with construction and operation of Unit 3 are addressed in the COL application, which consists of several components that include, but are not limited to, a Final Safety Analysis Report, Probabilistic Risk Assessment, Environmental Report, Security Plan, Emergency Preparedness Plan, and Quality Assurance Program description. Through the COL review process, the NRC develops design-specific, pre-approved performance standards that a licensee must meet before the NRC will approve the loading of fuel and commencement of plant operation.

The NRC staff conducts a substantive review of each component of the license application and follows rigorous regulatory guidelines pursuant to the Standard Review Plan ("SRP") for the Review of Safety Analysis Reports for Nuclear Power Plants and the Environmental Standard Review Plan ("ESRP") for Nuclear Power Plants.[21] The SRP is a

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20 10 C.F.R. Part 52, Subpart B (2007).

21 The SRP (Nuclear Regulatory Commission Regulatory Guidance Document 0800 ("NUREG-0800")), Regulatory Guide 1.206, Combined License Applications for Nuclear Power Plants (LWR Edition) ("RG 1.206"), and the ESRP ("NUREG-1555") are publications prepared by NRC staff that establish criteria for use in evaluating whether an applicant meets applicable regulatory requirements. The criteria in NUREG and regulatory guide documents, however, are not a substitute for the actual regulations. Rather, they are comprehensive guidance documents designed to assist NRC staff in conducting their reviews and evaluating applications.

comprehensive and integrated document that provides the NRC staff with guidance developed to ensure that a given design will comply with the NRC's regulations and will protect public health and safety. The ESRP guides NRC staff in conducting environmental reviews of nuclear power plant licensing applications and in preparing draft and final environmental impact statements to ensure compliance with environmental laws and regulations during the construction and operation of the new plant. As part of the NRC's COL process, the public is provided an opportunity to participate in administrative hearings associated with the application.

Once the NRC staff has completed its initial evaluation and prepared a safety evaluation report, the Advisory Committee on Reactor Safeguards ("ACRS")[22] – an independent advisory group of technical experts – reviews the COL application and the NRC staff's safety evaluation report in a public meeting. Pursuant to the Federal Advisory Committee Act, the ACRS provides a forum where experts representing many technical perspectives provide independent advice that is part of the NRC's final decision-making process. The NRC will issue a combined license only after finding that all applicable requirements under NRC regulations have been met and that there is assurance that the facility will be constructed and operated in conformity with the criteria set forth in the combined license, the provisions of the Atomic Energy Act, and the NRC's regulations.[23]

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22 The ACRS, statutorily mandated by the Atomic Energy Act, reviews and reports on safety studies and reactor facility license and license renewal applications, advises the NRC on the hazards of proposed and existing reactor facilities and the adequacy of proposed reactor safety standards, and initiates reviews of nuclear facility safety-related items. The ACRS is independent of NRC staff and reports directly to the NRC, which appoints the ACRS members. 42 U.S.C. § 2039 (2005).

23 10 C.F.R. § 52.97 (2007); *see also* 42 U.S.C. § 2235(b) (2005); 10 C.F.R. Part 52, Subpart C (2007).

After receiving a combined license, the Co-Applicants can begin construction of the safety-related portions of the facility.[24] During and after construction, the NRC verifies that the licensee has performed all required inspections, tests and analyses and that the acceptance criteria for the inspections, tests and analyses, as defined in the COL, have been met. Upon successful verification, and at least 180 days prior to initial loading of nuclear fuel into the reactor, the NRC issues a public notice of intended operation and invites any person whose interest may be affected by operation of the plant to request a hearing on whether the facility as constructed complies with the above-referenced COL acceptance criteria.

On July 13, 2007, the Co-Applicants submitted a partial COL application to the NRC. This submittal included the Calvert Cliffs Unit 3 Environmental Report ("ER") and Chapter 2 (Site Characterization) of the Final Safety Analysis Report. By March 2008, the Co-Applicants plan to submit the remainder of the COL application.[25] In addition to seeking a COL, the vendor for the proposed facility, AREVA, is expected to submit a standard design certification application for the U.S. EPR by the end of 2007.[26] The design certification process resolves

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[24] Non-safety-related portions of the facility can be constructed prior to license issuance, subject to receipt of a CPCN. Moreover, it is possible for some limited amount of safety-related construction activities to be performed if, after receipt of the CPCN, the NRC grants the Co-Applicants a Limited Work Authorization ("LWA"). 10 C.F.R. § 50.10(e) (2007).

[25] For all applications and related materials submitted to the NRC, Title 10 of the Code of Federal Regulations, Part 73.21, requires the protection from disclosure of safeguards information. Safeguards information includes physical protection at fixed sites, including security plans, site-specific diagrams or maps, and alarm system layouts; physical protection in transit, including transportation security plans, schedules and itineraries for specific shipments, and details regarding radio-telephone communications; inspections, audits and evaluations; and correspondence pertaining to plant security. 10 C.F.R. § 2.811 (2007).

[26] The certification process for the U.S. EPR began in February 2005, when AREVA formally requested pre-application review. During the pre-application process, the NRC has held and continues to hold public meetings with AREVA to discuss advanced reactor

safety issues prior to an application to construct a nuclear power plant and promotes standardization of nuclear power plant designs.[27] The design certification application will provide the technical information necessary to demonstrate that the U.S. EPR complies with the safety standards set forth in applicable NRC regulations. In general terms, the design certification application will provide a complete nuclear plant design for the U.S. EPR and will present a safety analysis of the structures, systems, and components of the facility as a whole, with the exception of site-specific design features dependent on site selection. If the design is determined to be acceptable, NRC staff will certify it through a standard rulemaking process, requiring public notice and comment.

The Co-Applicants seek to obtain a CPCN by December 2008 and a COL from the NRC in March 2011. While the Co-Applicants may not begin actual, onsite construction activities until the CPCN has been granted,[28] the NRC process allows the Co-Applicants to commence limited site preparation and certain pre-construction activities prior to obtaining final COL approval. The goal is for Calvert Cliffs Unit 3 to begin commercial operation in December 2015. To achieve that goal, the Co-Applicants will need to begin site clearing and pre-construction site preparation by early-2009. A complete implementation schedule is provided in the *Technical Report* at § 1.4.

The Co-Applicants look forward to working with the Commission to achieve these goals.

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design and to identify major safety issues requiring new guidance from NRC staff, major technical issues that require resolution under existing guidelines, and the research needed to resolve identified issues.

27 There are four existing standard designs already certified by the NRC in the United States, pursuant to 10 C.F.R. Part 52, Appendices A, B, C and D.

28 The Co-Applicants may seek a Commission determination regarding which activities are considered to be within the scope of the commencement of construction.

II. CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY APPLICATION REQUIREMENTS

This section will summarize and supply the necessary information to obtain a CPCN under Maryland laws and regulations. Part 1 of this section lists the filing requirements under COMAR 20.79.01.04. Part 2 provides a general description of the generating station as required by COMAR 20.79.03.01. Part 3 details the environmental information as required by COMAR 20.79.03.02. Part 4 demonstrates that the Co-Applicants have satisfied the specific statutory criteria required by § 7-207(e) of the Maryland Public Utility Companies Article, which the Commission must consider before granting the Application. Part 5 attests that the Co-Applicants have submitted the required information and will furnish additional information as requested in accordance with § 7-208(c) of the Maryland Public Utility Companies Article. Finally, it should be noted that this project will require no condemnation of land.

Part 1. Filing Requirements Pursuant to COMAR 20.79.01.04

An application for a Certificate of Public Convenience and Necessity for the construction of a generating station or an overhead transmission line, or an application for modification to an existing generating station or transmission line, shall include the following information:

A. The name of the applicant;

The names of the legal entities that are applying for the CPCN and seeking approval from the Commission are:

UniStar Nuclear Energy, LLC (owner)
(Applicant)

and

UniStar Nuclear Operating Services, LLC (operator)
(Applicant)

B. The address of the principal business office of the applicant;

The addresses of the principal business offices of the Co-Applicants are:

UniStar Nuclear Energy, LLC
750 E. Pratt Street, 14th Floor
Baltimore, MD 21202

UniStar Nuclear Operating Services, LLC
750 E. Pratt Street, 14th Floor
Baltimore, MD 21202

C. The name, title, and address of the person authorized to receive notices and communications with respect to the application;

The persons authorized to receive notices and communications with respect to this application are:

Rod M. Krich
Senior Vice President Regulatory Affairs, UniStar Nuclear Operating Services, LLC
Senior Vice President Regulatory Affairs, UniStar Nuclear Energy, LLC
750 East Pratt Street, 14th Floor
Baltimore, MD 21202

Charles O. Monk, II, Esquire
Saul Ewing LLP
500 East Pratt Street, 8th Floor
Baltimore, MD 21202

Deborah E. Jennings, Esquire
DLA Piper U.S. LLP
111 South Calvert Street, Suite 1950
Baltimore, MD 21202-6193

D. The location or locations at which the public may inspect a copy of the application;

The public may inspect a copy of the application at:

Calvert County Public Library, Southern Branch
20 Appeal Lane
Lusby, Maryland 20657

E. A list of each local, state, or federal government agency having authority to approve or disapprove the construction or operation of the project and containing a statement (1) indicating whether the necessary approval from each agency has been obtained, with a copy of each approval or

disapproval attached; (2) if necessary approval has not been obtained, the reason why; and (3) indicating whether any waiver or variance has been granted or requested, with a copy of each attached;

A list of the local, state, and federal agencies having regulatory oversight of the construction and operation of the proposed Calvert Cliffs Unit 3 is provided as Table 1.3-1 of the *Technical Report.* In addition, the Co-Applicants anticipate entering into an interconnection service agreement with PJM, which will be filed with the FERC as required by the PJM tariff.

F. The information described under COMAR 20.79.04.01 for transmission lines;

Calvert Cliffs Unit 3 will use the existing transmission system. No additional offsite transmission corridors or other offsite land use will be required to connect the new reactor unit to the existing electrical grid. The existing transmission system consists of two circuits, the North Circuit, which connects the CCNPP site to the Baltimore Gas and Electric Company's ("BGE") Waugh Chapel Substation in Anne Arundel County, and the South Circuit, which connects the site to the Potomac Electric Power Company's ("PEPCO") Chalk Point Substation in Prince George's County. The North Circuit is composed of two separate three-phase 500 kV transmission lines run on a single right-of-way from the site, while the South Circuit is a single three-phase 500 kV line.

On the Calvert Cliffs campus, the following transmission facilities will be constructed:

- One new 500 kV substation to transmit power from Calvert Cliffs Unit 3;
- Two new three-phase 500 kV, 3,500 MVA lines, 1.0 mi (1.6 km) in length, on individual towers, connecting the Calvert Cliffs Unit 3 substation to the existing Calvert Cliffs Units 1 and 2 substation and to the grid; and
- Two existing three-phase 500 kV, 3,500 MVA lines that are currently connected to the existing Units 1 and 2 substation will be disconnected from that substation and extended one mile (1.6 km), on individual towers, to the Unit 3 substation.

Additionally, numerous breaker upgrades and associated modifications will be required at the Waugh Chapel Substation, the Chalk Point Substation, and other substations. All of the offsite modifications will be implemented within the existing substations. PJM has prepared the required technical studies regarding the feasibility and impact of Calvert Cliffs Unit 3 on the transmission system and has determined that, with minor upgrades and the acceptance of certain operational limitations which apply only under rare circumstances, the existing transmission corridor will be sufficient to serve the output of the facility. The cost of these upgrades will be paid for by the Co-Applicants in accordance with the PJM tariff requirements. Onsite line routing will be conducted so as to avoid or minimize any impact on the existing Independent Spent Fuel Storage Installation,[29] nontidal wetlands, or threatened and endangered species. The final design of the new and relocated transmission lines has not been completed, but the layout of the new lines will not have any impact on the existing offsite transmission corridors, and all new line construction will be contained within the existing CCNPP site property boundary.

G. A general description of the generating station or generating station modification under COMAR 20.79.03.01, or the transmission line or the modification to an existing transmission line under COMAR 20.79.04.02 and .03;

In addition to the description of the proposed Calvert Cliffs Unit 3 found above in Part I, a more complete description is located in § 2.0 of the *Technical Report*.

H. An implementation schedule for the project; and

Co-Applicants anticipate commencement of initial site preparation and non-safety-related construction in January 2009, commencement of safety-related plant construction in April 2011,

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[29] The Independent Spent Fuel Storage Installation ("ISFSI") is a NRC-licensed complex designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel.

and completion of construction in July 2015. These dates and a more detailed implementation schedule for the project are set forth below.

Estimated Implementation Schedule for the Project

Milestone	Action	Completion Date
1.	Submit Environmental Report to NRC	July 2007
2.	Submit CPCN Application to Maryland Public Service Commission	November 2007
3.	Start Detailed Engineering	Fourth Quarter 2007
4.	Submit Design Certification Application to NRC for the U.S. EPR	December 2007
5.	Submit Limited Work Authorization Application to NRC	March 2008
6.	Submit Remainder of COL Application to NRC	March 2008
7.	Maryland Public Service Commission Issues CPCN	December 2008
8.	Site Preparation and Non-Safety-Related Construction Begins	January 2009
9.	NRC Issues Limited Work Authorization	December 2009
10.	NRC Issues Design Certification for U.S. EPR	October 2010
11.	NRC Issues COL	March 2011
12.	Safety-Related Plant Construction Begins	April 2011
13.	Plant Construction Complete	July 2015
14.	Plant Startup Testing Begins	July 2015
15.	Commercial Operation Begins	December 2015

I. The environmental information required under COMAR 20.79.03.02 for generating stations or COMAR 20.79.04.04 for transmission lines.

The environmental information is reported below, in § II.3 of this CPCN Application and in more detail throughout the attached *Technical Report*.

Part 2. General Description of the Generating Station or Generating Station Modification, Including Linear Facilities, Pursuant to COMAR 20.79.03.01, or of the Transmission Line or Modification to an Existing Transmission Line Pursuant to COMAR 20.79.04.02 and .03

A. Location;

The proposed Calvert Cliffs Unit 3 will be situated on the existing 2,070-acre CCNPP campus in Calvert County, Maryland. The site is located on the west bank of the Chesapeake Bay, approximately halfway between the mouth of the Bay and its headwaters at the Susquehanna River. The proposed Calvert Cliffs Unit 3 will be situated to the south of the existing Units 1 and 2 and will be located upon the approximately 1,108-acre South Parcel that will be conveyed before construction begins. A further description of the location is provided in § 2.1 of the *Technical Report*.

B. Design features;

The design features of the proposed Calvert Cliffs Unit 3 are described generally in the Project Overview, above, and more specifically in the attached *Technical Report* at § 2.2.

C. Operational features, including the expected capacity factor;

The U.S. EPR is designed to produce approximately 1,710 MW of gross generation capacity (or approximately 1,600 MW of net output for sale after on-site consumption) and to operate with a capacity factor of 95% (annualized), considering scheduled outages and other plant maintenance. A comprehensive description of the operational features appears in § 2.3 of the *Technical Report*.

D. The schedule for engineering, construction, and operation;

The implementation schedule for engineering, construction, and operation of this facility, is provided in § II.1.H, above.

E. A statement of the reasons for the selection of the design and the site of the generating station, including linear facilities, or generating station modification;

The benefits of the design features of the proposed Calvert Cliffs Unit 3 are described generally in the Project Overview, above, and more specifically in the attached *Technical Report* at § 2.2. The placement of the proposed project upon the campus of the existing CCNPP and the proximity of that site to existing major electric transmission lines allows for the development of the project with minimal environmental impacts.

A siting study (attached in Appendix A to the *Technical Report*) was conducted to select an appropriate location on the Calvert Cliffs campus for the proposed project. The site selection criteria used to evaluate proposed sites included environmental impacts, security, land use and zoning, construction considerations, switchyard and transmission line considerations, and impact to existing facilities. The environmental impacts that were evaluated included visual impacts, wetlands, endangered or threatened species, environmentally sensitive areas, and historic and cultural sites. When all factors were considered, the South Parcel was determined to be the best site for construction of the project.

The complete reasons for selecting the site of this generating station are discussed further in § 2.5 and Appendix A of the *Technical Report*.

F. A description of the impact of the project on the economics of the State;

Calvert Cliffs Unit 3 will have a positive impact on the economics of the State through the creation of jobs, the growth of the tax base, and the expansion of base-load generating capacity that will support future economic growth.

Calvert Cliffs Unit 3 will pay real and personal property taxes on the proposed new unit. Calvert County has agreed to provide a 50% credit against the property taxes during the first 15 years after the new unit is placed in service. At the conclusion of this period, the plant will pay the full amount of taxes imposed by the County, without abatement. The Calvert County Board of County Commissioners publicly estimates that the expansion will provide the County with $20 million in additional annual tax revenue, which can be used to fund education, school construction, roads, law enforcement, and fire and rescue services.

The new unit will provide construction jobs to approximately 2,500 to 4,000 workers, depending on the stage of the five years of construction. Upon completion, it is anticipated that operation of Unit 3 will require a skilled workforce of approximately 360 people. It also is anticipated that the new jobs will be maintained throughout the life of the plant. These positive impacts are also described in §§ 2.6, 5.7 and 6.7 of the *Technical Report*.

Furthermore, there is a demonstrated future need for additional base-load electric capacity in the region that includes the State of Maryland. By supplying approximately 1,600 MW of additional electric capacity, Calvert Cliffs Unit 3 will help protect both the stability and reliability of the bulk power system in this region and support a robust and competitive wholesale market for electric power.

G. A description of the impact of the project on the stability and reliability of the electric system, or, if the impact is not known at the time of application, an explanation of the steps undertaken by the applicant to determine the impact, including the expected date for submission of the impact description; and

PJM has prepared the necessary project interconnection feasibility and impact studies and has determined that Calvert Cliffs Unit 3, with the replacement of certain breakers and the acceptance of certain operational limitations under rare circumstances, can be added to the grid without adversely impacting the transmission system.

In fact, the construction of a third nuclear-fueled generation unit at the CCNPP site will improve current reliability by providing a significant new supply source near rapidly growing demand in the Baltimore-Washington corridor and by adding generation capacity adjacent to existing transmission capability. The addition of this base-load generation source nearby to load centers is expected to reduce the peak period congestion on transmission lines within the State of Maryland, as well as to free capacity on lines that are importing power from adjacent states.

This topic is also discussed in § 2.7 of the *Technical Report*.

H. To the extent feasible, the location and major design features of any required major electric system upgrade, including any associated transmission line, as a result of the project.

The location of the proposed Calvert Cliffs Unit 3 on the campus of the existing CCNPP will allow construction and utilization of the new facility with only minimal upgrades to the electric system. First, two new 500 kV transmission lines will be installed, wholly within the existing campus, to interconnect Calvert Cliffs Unit 3 to Units 1 and 2 and indirectly to the existing transmission system. Secondly, two existing 500 kV transmission lines that are currently connected to the existing Units 1 and 2 substation will be disconnected from that substation and extended to the Unit 3 substation. Thirdly, breaker upgrades and associated

modifications will be required at BGE's Waugh Chapel Substation, PEPCO's Chalk Point Substation, and other substations. These upgrades and modifications will take place within the existing substations, and the costs will be borne by the Co-Applicants as required by the PJM tariff.

Part 3. Environmental Information Pursuant to COMAR 20.79.03.02

A. The purpose of this regulation is to require the applicant to demonstrate that the application complies with applicable environmental restrictions.

B. The environmental information shall include:

1. The following general information:

a. A general description of the physical, biological, aesthetic, and cultural features, and conditions of the site and adjacent areas;

Section 4.0 of the *Technical Report* describes in detail the conditions of the site and adjacent areas including the location, land use, geology and hydrology, air quality, ecology, socioeconomic features, existing site noise, and meteorology.

b. A summary of the environmental and socioeconomic effects of the construction and operation of the project, including a description of the unavoidable impact and recommended mitigation;

The environmental and socioeconomic effects of the construction and operation of the project, including a description of unavoidable impacts and recommended mitigation is located in §§ 5.0 and 6.0 of the *Technical Report*.

c. A copy of all studies of the environmental impact of the proposed project prepared by the applicant; and

All studies of the environmental impact of the proposed project prepared by the Co-Applicants are listed in § 3.0 of the *Technical Report* and are appended thereto in Appendix A.

d. A statement of the ability to conform to applicable environmental standards.

Calvert Cliffs Unit 3 will conform to all applicable environmental standards.

2. A description of the effect on air quality, including the:

a. Ability of the generating station to comply with:

i. Federal or State ambient air quality standards;

ii. Federal or State emission standards;

iii. Federal new source performance standards;

iv. Federal emission standards for hazardous air pollutants;

v. Prevention of significant deterioration and new source review provisions; and

vi. Any requirement to obtain emission offsets, allowances, and reduction credits.

A description of the ability of Calvert Cliffs Unit 3 to comply with Federal and State ambient air quality standards, emission standards, new source performance standards, Federal emission standards for hazardous air pollutants, prevention of significant deterioration and new source review provisions, and requirements to obtain emissions off-sets is provided in §§ 5.5 (as to construction) and 6.5 (as to operation) of the *Technical Report*.

b. Impact on prevention of significant deterioration areas and existing non-attainment areas; and

A discussion of the impact of Calvert Cliffs Unit 3 on prevention of significant deterioration areas and existing non-attainment areas is provided in § 6.5 of the *Technical Report*.

c. Information and forms required by Department of the Environment regulations relating to permits to construct and operating permits under COMAR 26.11.

The information required by the Maryland Department of the Environment ("MDE") regulations relating to permits under COMAR 26.11 is provided in §§ 5.5 and 6.5 and the required forms are in Appendix C to the *Technical Report*.

3. A description of the effect on water quality and appropriation, including:

a. An analysis of the availability of surface water and ground water for the proposed generating station;

Calvert Cliffs Unit 3, like existing Units 1 and 2, will require water from the Chesapeake Bay for cooling and operational purposes, although the planned design permits Calvert Cliffs Unit 3 to draw far less water (and at a lower flow velocity) than is required by the earlier units. A complete analysis of the availability of surface and ground water is provided in §§ 5.4 (as to construction) and 6.4 (as to operation) of the *Technical Report*.

b. The identification of affected streams and aquifers;

The affected streams are identified in the wetlands delineation described at § 5.1.1.3 of the *Technical Report*. During construction, it may be necessary to utilize the existing unused capacity of the well-water appropriation for Units 1 and 2. A portion of this Application seeks permission for this appropriation. In addition, Co-Applicants will seek permission to utilize water outfall from foundation dewatering to serve other construction water needs Finally, the

Co-Applicants expect to use desalinated water from the Chesapeake Bay during the final years of construction. *See Technical Report* at § 5.4.1.2. The aquifers will not be affected by operation of the plant, because the design of Calvert Cliffs Unit 3 relies on desalinated water from the Chesapeake Bay, rather than groundwater, for its freshwater needs. *See Technical Report* at § 6.4.1.

c. The impact on other water users;

The impacts on other water users are negligible because the Co-Applicants are not seeking to take more well-water than Units 1 and 2 are currently authorized to use. This is discussed in §§ 5.4 (as to construction) and 6.4.3 (as to operation) of the *Technical Report*.

d. The mitigation and minimization techniques evaluated; and

The proposed plan for Calvert Cliffs Unit 3 employs a variety of techniques that reduce the amount of water required for its operations (as compared to older designs like Units 1 and 2). Moreover, desalination will avoid the need to draw fresh water from the aquifers. The mitigation and minimization techniques evaluated for water quality and appropriation are described in §§ 5.4 (as to construction) and 6.4.4 (as to operation) of the *Technical Report*.

e. The information and forms required by Department of the Environment regulations relating to water use and appropriation under COMAR 26.17.06.07 and 26.17.07, if applicable.

The information required by MDE regulations relating to water use and appropriation under COMAR 26.17.06.07 and 26.17.07 is provided in §§ 5.4 (as to construction) and 6.4 (as to operation) and the required forms are in Appendix C to the *Technical Report*.

4. A description of the effect on State or private wetlands, including:

a. Public health and welfare;
b. Marine fisheries;
c. Shell fisheries;

d. Wildlife;

e. Protection of life and property from flood, hurricane, or other natural disaster;

The construction footprint for Calvert Cliffs Unit 3 was designed to minimize encroachment into areas delineated as wetlands. Nevertheless, certain existing streams and tidal and nontidal wetlands will, by necessity, be permanently or temporarily impacted. Co-Applicants estimate that a total of 14.3 acres of wetlands will be impacted as a result of the construction and operation of Unit 3. A description of the effect of the proposed Calvert Cliffs Unit 3 on wetlands is provided in §§ 5.6.3 and 6.6.3 of the *Technical Report*.

f. The evaluation of mitigation and minimization techniques, including proposals related to replacement lands; and

Wetland mitigation will be required by conditions established in an individual permit to be issued by the United States Army Corps of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act,[30] and in the CPCN in accordance with the requirements of the Maryland Nontidal Wetlands Protection Act.[31]

Wetland mitigation follows a sequencing process beginning with avoidance of wetland impacts, then minimization of wetland impacts, and lastly compensatory mitigation to offset impacts. The proposed Unit 3 facilities have been sited, and the proposed construction has been configured, to avoid encroaching into wetlands (and a surrounding 50-foot (15 meter) wide buffer) to the extent practicable. The Co-Applicants also considered other significant siting factors, such as minimizing encroachment into the Chesapeake Bay Critical Area, keeping NRC-required buffers within the site boundaries, and situating the power block close to the existing

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30 33 U.S.C. § 1344 (2005).

31 Md. Code Ann., Envir. § 5-901, *et seq.* (2006).

Calvert Cliffs Units 1 and 2. As a result, there is no more practicable alternative to the wetland impacts than that detailed in the *Technical Report*.

Several measures will be taken to minimize the unavoidable adverse effects to wetlands. The use of silt fences, temporary and permanent vegetative stabilization, and other soil erosion and sediment control practices will reduce the risk of sediment runoff into intact wetlands adjoining the areas of fill. To compensate for the unavoidable wetlands impacts, the Co-Applicants have developed a conceptual mitigation plan that is divided into four categories: (1) on-site forested wetland creation; (2) on-site herbaceous wetland enhancement; (3) on-site stream enhancement via stream bank stabilization; and (4) off-site forested wetland restoration. The details of each mitigation plan component are presented in § 5.6.4 of the *Technical Report*.

Following the completion of the on-site wetland creation and wetland enhancement activities, a five-year annual monitoring plan will be implemented pursuant to the MDE's Water Management Administration ("WMA") mitigation monitoring guidelines and protocols.

g. The information and forms required by Department of the Environment regulations relating to a license for use of State tidal wetlands or nontidal wetlands under COMAR 26.23 and 26.24.

The information required by MDE regulations relating to a license for use of State tidal and nontidal wetlands under COMAR 26.23 and 26.24 is provided in §§ 5.6.3 (as to construction) and 6.6.3 (as to operation) and the required forms are included in Appendix C to the *Technical Report*.

5. A discussion of the economics and availability of means for the disposal of plant-generated wastes.

Plant-generated waste disposal is discussed in § 6.9 and Appendix D to the *Technical Report*. Handling of spent nuclear fuel is controlled and regulated by the NRC in accordance

with the Nuclear Waste Policy Act of 1982.[32] Regulation of the disposal of low-level radioactive waste is delegated to the Maryland Department of the Environment in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985.[33]

Part 4. Final Action by Commission Pursuant to Maryland Public Utility Companies Article § 7-207(e).

The Commission shall take final action on an application for a certificate of public convenience and necessity only after due consideration of the effect of the generating station on:

i. Recommendation of the governing body of each county or municipal corporation in which any portion of the construction of the generating station or overhead transmission line is proposed to be located;

The Calvert County Board of County Commissioners has expressed its unanimous support for Calvert Cliffs Unit 3, as described above. No portion of the proposed project site is within the boundaries of a municipal corporation.

ii. The stability and reliability of the electric system;

As stated above, PJM has conducted the required feasibility and impact studies and determined that Calvert Cliffs Unit 3 will not have an adverse impact on the reliability of the electric system.

In fact, as described above, the addition of Calvert Cliffs Unit 3 at the CCNPP site will improve the current reliability situation by providing a significant new supply source near rapidly growing demand in the Baltimore-Washington corridor and by adding generation capacity adjacent to existing transmission capability. The addition of this base-load generation source to nearby load centers is expected to reduce the peak period congestion on transmission

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32 42 U.S.C. § 10151 *et seq.*; *see also* 10 C.F.R. Part 72.

33 42 U.S.C. § 2021(b) (2005).

lines within the State of Maryland, as well as to free capacity on lines that are importing power from adjacent states. This topic is discussed in § 2.7 of the *Technical Report.*

iii. Economics;

Calvert Cliffs Unit 3 will have a positive impact on the economics of the State through the creation of jobs, the growth of the tax base, and the expansion of base-load generating capacity that will support future economic growth. These positive impacts are described more fully in §§ 2.6, 5.7 (as to construction) and 6.7 (as to operation) of the *Technical Report.*

iv. Esthetics;

Calvert Cliffs Unit 3 will be situated on the southern portion of the Calvert Cliffs campus where the topography and woodlands provide maximum screening. Only the tops of the tallest structures might be visible from adjacent properties, while the steep cliffs and mature trees along the shoreline will screen the view of the project from the Chesapeake Bay.

In addition, Calvert Cliffs Unit 3 will be located approximately 3,000 to 4,000 feet (914.4 to 1,219.2 m) from the nearest residential properties. The intervening forest and topography will help shield the plant from view. From the east, considering that the approximately 2-mi (3.2 km) long shoreline bordering the property consists of steep cliffs with little beach area, views of the new plant should be limited due to elevation differences, forested borders, and the approximately 1,000-foot (304.8 m) setback.

Construction of the heavy haul road, a related heavy equipment staging area, and the new water intake structure will require removal of a portion of the cliff area near Units 1 and 2 and will cause those facilities to be exposed to a wider field of view from the Chesapeake Bay. The intake structure, pump house and associated discharge piping at the shoreline for Calvert Cliffs Unit 3 should have minimal visual impact considering their proposed locations near the existing

Units 1 and 2 intake structure and barge slip facility, respectively. No other structures will be visible from nearby ground-level vantage points.

Exterior finishes for plant buildings will be similar in color and texture to those of the Calvert Cliffs Units 1 and 2 buildings. This provides for a consistent appearance by architecturally integrating the buildings on the CCNPP site. Areas that are cleared to support construction activities will be either maintained by reseeding or restored by replanting with native trees and vegetation, so that the Calvert Cliffs Unit 3 landscape will blend with the Units 1 and 2 landscape and the remaining undisturbed areas on the CCNPP site.

Moreover, as stated above, Calvert Cliffs Unit 3 will use a single mechanical draft cooling tower for heat dissipation with a plume abatement system that will eliminate the water vapor plume commonly associated with large wet cooling towers. A complete description of the cooling tower and cooling water system is set forth in § 6.2 of the *Technical Report.*

Further descriptions of the esthetic factors to be considered in approving the proposed Calvert Cliffs Unit 3 are located in §§ 5.2.3.2, 5.6.3.1, 5.7.1 and 5.7.1.5 of the *Technical Report.*

v. Historic sites;

The Co-Applicants have conducted a Phase I survey of historic sites on the proposed Calvert Cliffs Unit 3 site and identified those historic sites that will be affected by construction and operation of Unit 3. The Co-Applicants will conduct a Phase II study of the affected historic sites and develop a mitigation plan in conjunction with the State Historic Preservation Officer. A detailed description of the historic sites identified is located in §§ 4.2.3, 5.2.3, and 6.2.3 of the *Technical Report.*

vi. Aviation safety as determined by the Maryland Aviation Administration and the administrator of the Federal Aviation Administration;

Federal Aviation Administration ("FAA") approval is required for construction of any building in excess of 200 feet above ground level.[34] No structure associated with this application exceeds 200 feet above ground level. Maryland Aviation Administration ("MAA") approval is required only for buildings that are in excess of 200 feet above ground level and within 3 nautical miles of the established reference point of a public-use airport.[35] Calvert Cliffs Unit 3 is not within this radius and, therefore, approval from the MAA is not required.

vii. When applicable, air and water pollution; and

Calvert Cliffs Unit 3's potential effect on water pollution is described in §§ 4.4, 5.4, and 6.4 of the *Technical Report*. The potential effect of Calvert Cliffs Unit 3 on air pollution is described in §§ 4.5, 5.5, and 6.5 of the *Technical Report.*

viii. The availability of means for the required timely disposal of wastes produced by any generating station.

Plant-generated waste disposal is discussed in § 6.9 and Appendix D of the *Technical Report*. Proposed handling of the spent nuclear fuel is controlled and regulated exclusively by the NRC, while regulation of low-level radioactive materials has been delegated to MDE. Consequently, the subject of nuclear waste disposal is not addressed in great detail in this Application or in the attached *Technical Report.*

Part 5. Contents of Application Pursuant to Maryland Public Utility Companies Article § 7-208(c).

The applicant shall (1) include in an application under this section the information that the Commission requests initially and (2) furnish any additional information that the Commission requests subsequently.

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34 14 C.F.R. § 77.13 (2007).

35 COMAR § 11.03.05.04.

The Co-Applicants have furnished with this CPCN application all information required by the Commission. Moreover, the Co-Applicants will supply any appropriate information that the Commission requests.

CONCLUSION

WHEREFORE, the Co-Applicants, UniStar Nuclear Energy, LLC, and UniStar Nuclear Operating Services, LLC, respectfully request that the Maryland Public Service Commission grant them a Certificate of Public Convenience and Necessity to construct Unit 3 at Calvert Cliffs Nuclear Power Plant and associated transmission lines.

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VERIFICATION BY CO-APPLICANTS

I hereby swear that I am duly authorized to execute this application on behalf of UniStar Nuclear Energy, LLC and that the contents of the application and the accompanying Technical Report are true and correct to the best of my knowledge, information, and belief.

_____ (Signature)
George Vanderheyden
President and Chief Executive Officer
UniStar Nuclear Energy, LLC

11/6/07 (Date)

I hereby swear that I am duly authorized to execute this application on behalf of UniStar Nuclear Operating Services, LLC and that the contents of the application and the accompanying Technical Report are true and correct to the best of my knowledge, information, and belief.

_____ (Signature)
George Vanderheyden
President and Chief Executive Officer
UniStar Nuclear Operating Services, LLC

11/6/07 (Date)